

UNIVERSITY OF ILLINOIS
LIBRARY

Class

616.805 JO

Book

Volume

29'





Digitized by the Internet Archive
in 2021 with funding from
University of Illinois Urbana-Champaign

616.805

50

1,29

no. 1-6

Volume 29.

January, 1902.

No. 1.

1177
698.

THE
Journal
OF
Nervous and Mental Disease.

Original Articles.

CONTRIBUTION TO THE STUDY OF SPINAL FRACTURE
WITH SPECIAL REFERENCE TO THE QUESTION
OF OPERATIVE INTERFERENCE.*

By G. L. WALTON, M. D.,

PHYSICIAN TO THE NEUROLOGICAL DEPARTMENT, MASSACHUSETTS GEN-
ERAL HOSPITAL; CLINICAL INSTRUCTOR IN NEUROLOGY,
HARVARD UNIVERSITY.

Twelve years ago Thorburn predicted that surgeons would "probably, in the near future, open the spinal canal with as little danger and as little hesitation as they now operate upon the cavity of the cranium"; adding that in order to permit of such an extension of therapeutic art it would be necessary still further to increase the accuracy of our diagnostic methods. This prediction has been already verified, and to no author more than to Thorburn is due the present accuracy of our diagnostic methods.

Experience has even shown that spinal operation is comparatively free from the drawbacks and dangers attending intracranial surgery. This fact, together with the serious, painful and usually fatal nature of the lesion under consider-

*Read by invitation before the New York Neurological Society, October, 1901; read also at the November meeting of the Boston Society of Psychiatry and Neurology.

185559

F

ation, renders the question pertinent whether it is not wise to make early operation the common custom, in the hope, not only of relieving pain, and of improving the course of the average case, but even of saving an occasional patient from helpless invalidism if not from death. This is the main question, the discussion of which this paper is intended to reopen.

It is especially desirable that the question be discussed whether we really have reliable symptoms establishing (except through their persistence) irremediable crush of the cord; for if we have not, are we doing justice to the patient when we rely on the time-honored dictum that the damage was done at the moment of impact, that the pressure of fragments has been spontaneously relieved, and that nothing can be accomplished by operation? Enough cases have been published, both operative and non-operative, with more or less complete restoration of function after initial symptoms accepted by Kocher and others as indicating complete transverse lesion of the cord, to establish the fact that such lesions are sometimes capable of considerable restoration (Hammond², Lloyd³, Honan⁴, Israel⁵, Korteweg⁶, Pyle⁷, and others), and Case III of this paper may be added to the list. It is to be understood at the outset, therefore, that though we may follow the classification of Kocher⁸, Bastian⁹, Thorburn¹⁰, and others, the terms complete and incomplete lesion should not imply that the symptoms of the former are necessarily incapable of amelioration. This distinction has an important bearing on the question of operation, for Kocher states (p. 479) that operation is out of the question in case of total transverse lesion, though in case of partial lesion we may operate later, when long continued pressure is shown. In discussing the question of operative interference I shall claim no originality in venturing to dissent from these views on the ground (1) that we have no symptoms from which we can assert at the outset that the cord is crushed beyond, at least, a certain degree of repair, and (2) that we cannot predict which cases will fall into his second category, and that early operation in all doubtful cases will not only accomplish all that late operation will do for these cases, but it will be

performed to better advantage before reparative processes with adhesion and callus have appeared.

I shall first review the symptomatology, illustrating by personal observations, then discuss the prognosis and the question of operation, then consider briefly such points in the technique as seem appropriate.

SYMPTOMATOLOGY.

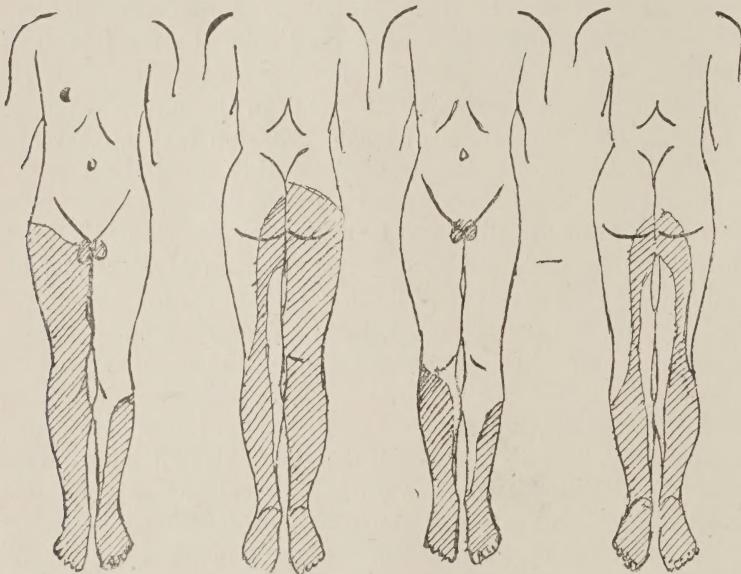
Motion.—Fracture of the spine with complete transverse lesion of the cord is accompanied by immediate relaxed motor paralysis involving the parts below the level of the lesion. There is entire absence of rigidity, of spasm, convulsive movement or other irritative sign in the motor sphere. The statement that signs of *motor* irritation may appear at the level of the lesion seems based rather upon theoretical considerations than upon actual observation.

Partial injury to the cord, including the results of hemorrhage, may be indicated by a slower onset of paralysis, by a unilateral or irregular distribution (affecting, for example, the arms more than the legs), by the preservation, or comparative preservation of reflexes and by the rapid improvement.

In diagnostinating the level of the lesion by studying the muscles involved in the paralysis, the tables of Thorburn, based on clinical rather than on anatomical or experimental considerations, have stood the test of practical application. It would appear that the motor symptoms may reach a much higher level than the sensory, at least in case of lesion of the lumbar enlargement. This may be illustrated by the following example, in which the area of anesthesia after operation reached no higher on either side than the sacral distribution, whereas the motor paralysis included the muscles supplied by the lumbar segments.

Case I.—A man of middle age fell from a second story window striking on the middle of the back. Paralysis followed. He was taken immediately to the Massachusetts General Hospital, entering the service of Dr. Conant, who kindly allows me to report the case. He was seen also by Drs. Baldwin and Paul who concurred in advising operation.

There was complete relaxed motor paralysis of the lower limbs. There was total anesthesia up to the groin on the right; on the left the anesthesia was limited to the outer aspect of the front of the leg below the knee, to the back of the leg and to a strip on the back of the thigh, the saddle-shaped area, the perineum, the scrotum and penis. (See Figs. I and II.) The reflexes were entirely wanting, including the knee-jerk, plantar, cremaster, abdominal and epigastric. Retention of urine was present. There was excoriation over the first lumbar spine with infiltration of the tissues. The first



Figs. I and II

Figs. III and IV

Figs. I and II. Areas of total anesthesia in Case 1, before Operation. Fig. III and IV. Anesthetic area in Case 1 after operation, showing disappearance, on the right, of that part of the anesthesia due to pressure on nerve roots.

lumbar spine was depressed, and pressure in that region was extremely painful. Rolling the patient over caused excruciating pain at this point. The patient was markedly alcoholic and delirium tremens was anticipated without as well as with operation; it was therefore decided to operate.

Operation, performed by Dr. Balch, revealed fracture of the first lumbar vertebra involving only the lamina on the left, but on the right extending into the transverse process. The separated portion was removed, together with fragments of

the twelfth dorsal which were found impinging upon the cord. The dura was freely opened, showing no discoloration or change in the consistency of the cord. There was free flow of cerebro-spinal fluid. The dura was not sutured, and the wound was closed without drainage. The wound healed practically by first intention. Moderate pain in the back persisted during the day following operation, but had become less two days after operation, from which time the patient expressed himself as comfortable and allowed himself to be rolled over without complaint. On the seventh day the expected delirium tremens appeared and lasted three days. The anesthetic area in the right leg was reduced within a few days to the sacral distribution.

The lower extremities remained warm and dry till the seventh day, when the left foot became cold and remained so for two days, after which it was less cold but still far below the temperature of the other foot. The skin temperatures on the fourteenth day after operation were as follows: Dorsum of right foot 93°; dorsum of left foot 88 1-2°; front of right thigh 94°; front of left thigh 91 1-2°.

The temperatures of the dorsum of the hand and front of the forearms taken for comparison were as follows: Dorsum of left hand 85°; front of forearms, left 93 3-4°; right 92 3-4°.

The temperature taken in the mouth at this time was 98°. At this date no material change had occurred in motion, sensation, reflexes or bladder and rectum control, though he could now feel the pressure of the urine or the flatus, over which he had no voluntary control. This patient can now (two months later) move the left thigh, and is very comfortable. Paralysis and reflexes are otherwise unchanged; there is no bed-sore.

This case will also be cited to illustrate the fact that unequal anesthesia does not preclude fracture, and will be referred to under the question of vaso-motor disturbance.

Dr. Warren¹¹, with the concurrent advice of Drs. Putnam, Baldwin, Taylor and myself, nineteen days after injury, removed, in 1896, the laminae of the twelfth dorsal and first and second lumbar vertebrae in a case of spinal fracture presenting very similar symptoms, and exhibited the patient at a recent medical meeting. At that time he had slight toe-drop on the left and walked with slight assistance from crutch and cane. The bladder was still improving, and he had not used the catheter for a year.

Sensation.—In fracture with total transverse lesion the area of anesthesia is generally sharply marked, and at a level corresponding to the segment crushed, that is, at a level materially below the seat of lesion. There is no more fascinating clinical study than that of sensory areas as presented in detail by Starr¹², Thorburn¹³, Knapp¹⁴, Kocher, Seiffer¹⁵, and others, but for the purpose of the present résumé it must suffice to remind ourselves in a general way that most authorities agree that the upper roots of the brachial plexus supply

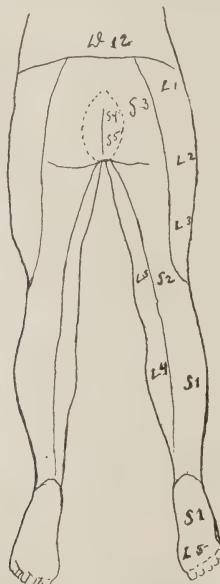
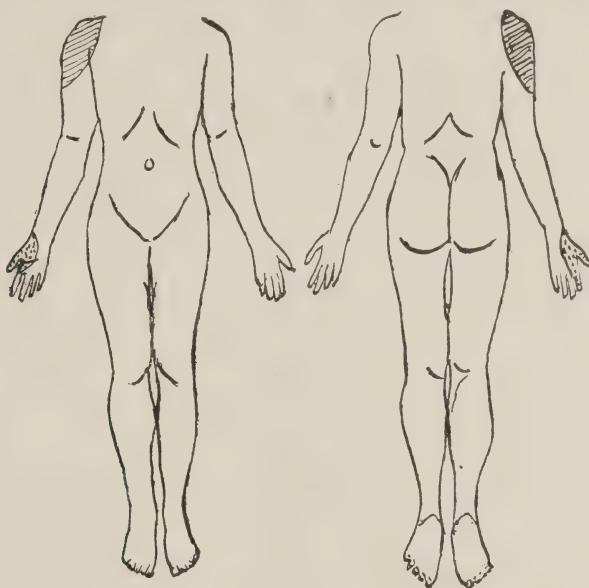


Fig. V. After Seiffer, shows that 12th dorsal and 3d sacral areas are adjacent, the areas supplied by intervening segments having extended down the limb.

the cap of the shoulder and the radial side of the arm and hand, while the lower roots supply a strip down the ulnar side of the arm and hand. The seventh dorsal segment supplies the ensiform region, the eleventh dorsal the umbilicus, and the lumbar the front and outer and inner aspects of the thigh to the groin and the inner aspect of the leg. The sacral supplies the region below the knee in front on the outer aspect, as well as the whole or greater part of the foot; it supplies

also the back of the leg, and a strip in the middle of the posterior surface of the thigh, and the saddle-shaped area, the perineum, scrotum and penis.

The fourth cervical segment furnishes sensation down to a line below the clavicle adjoining the distribution of the second dorsal. The absence of representation on the trunk, of the intervening segments, is explained by the fact that in the budding and growth of the upper extremity the areas supplied by the 5th, 6th, 7th and 8th cervical and the first



Figs. VI and VII. Area of anesthesia limited to supply of 5th cervical root, though 4th, 5th and 6th cervicals were severed.

dorsal are carried down the arm. This is well illustrated by Seiffer's modification of Bolk's diagrams.

For a similar reason the 12th dorsal closely approximates the 3d sacral on the buttock.

It is probable that *complete* anesthesia in any area implies loss of the segments above and below the one which supplies that area, as each part of the body receives sensory fibers from these segments. (Sherrington.) This is the probable

explanation of the fact that in the following case, seen in consultation with Dr. Mixter at the Massachusetts General Hospital, the only area of complete anesthesia was that of the 5th cervical, the middle of the three severed roots.

Case II.—A man fell upon a sharp object which produced a deep cut on the right side of the neck. Immediate paralysis followed, involving the spinati, the deltoid, biceps, supinator longus, latissimus dorsi and pectoralis major on the right. There was complete anesthesia over the cap of the shoulder in the distribution of the 5th cervical root. The picture was complicated by a paresthetic area in the radial distribution on the hand, perhaps due to injury of the musculo-spiral nerve.

Dr. Mixter found the 4th, 5th and 6th roots severed, and sutured them. Sufficient time has not elapsed to determine the final result.

It should not be forgotten that in case the roots are crushed at the same level as the cord the anesthesia will reach to the level of the lesion. In Case I of this paper, distribution of anesthesia showed that the roots were crushed on one side but spared on the other.

Below the well-known strip of hyperesthesia, which surrounds the anesthesia and points to root irritation, is apt to appear a strip of thermal anesthesia and of analgesia. (Kocher.) That this dissociation is not necessarily limited to the level of the lesion is shown by the following case, of which I am permitted to make a preliminary report. This patient was under the immediate care of Drs. Hinsdale and Washburn with Drs. Cabot and Mixter as surgical consultants. The operation was performed by Dr. Cabot.

Case III.—A young lady was thrown violently upward by an explosion, falling upon her back on the beams of the floor from which the boards had been torn away. Various heavy objects fell upon her. Besides fractures of all four extremities, of the left clavicle, of the nose, and of the sternum, there was complete relaxed paralysis of the lower extremities with loss of all reflexes, (knee-jerk, plantar, abdominal, epigastric.) There was an area of anesthesia bounded by a line just below the mammae, surmounted by an area of hyperesthesia.

There was complete loss of control and of sensation in the bladder and rectum. There was extreme pain on passive motion and great sensitiveness over the third dorsal, with

soreness over the first and second dorsal spines. Dr. Cabot removed the arches of the three upper dorsal vertebræ which were found depressed and impacted. Improvement in general condition was steady, except during a day or two, within a week of the operation, when there were signs of collapse with twitching of facial and brachial muscles, and the face and neck were bathed in cold perspiration. The free flow of cerebro-spinal fluid probably had a bearing upon these symptoms which were, however, temporary.

At the end of six weeks the sensation had so far improved that every touch was felt on both lower extremities, and the muscle sense had become normal in the left toes, but thermal sense was absolutely wanting on the left as well as on the right foot.

A large sacral bedsore was healing well. The bladder had been once evacuated voluntarily. The knee-jerk had returned, and become exaggerated with patellar clonus. Moderate Babinski reflex was present on the left; ankle-clonus had not appeared. The patient's general condition was excellent. No definite return of voluntary movement had appeared.

At the end of eight weeks ankle-clonus and Babinski reflex were well established. Nine weeks after operation the patient could flex the left thigh voluntarily, and two days later she could also separate the knees, and extend and flex the toes on the left fairly well, and could do so slightly on the right.

The superficial temperatures at this time were: Dorsum of right foot 94.6, left foot 95; front of right thigh 92.5, left thigh 92.5; dorsum of right hand 90.8, left hand 91.2; upper arm, right 91.5, left arm 91.2; right side of neck 94; right cheek 93.2, left cheek 92.5. The temperature taken by the mouth at this time was 98.4.

Since that time I have not seen her as she returned to Philadelphia, but I am informed she is still improving, though not able to sit up.

Whatever may be the final outcome of this case it certainly may be added to those showing that the classical symptoms of complete transverse lesion do not necessarily indicate a condition beyond repair. It also illustrates the fact that dissociation is not always limited to the height of the lesion. This symptom may point to the fact that the force of the crush is expended with more violence on the gray than on the white matter, thus producing a condition analogous to syringomyelia. The pathological evidence offered, for exam-

ple, by Thomas¹⁷ is instructive in this connection. It will be remembered, however, that at the last meeting of the American Neurological Association, Thomas¹⁸ presented a case of tumor outside of, and pressing on, the cord in the upper dorsal region, in which case dissociation was present on the whole body below the lesion; he also quoted Strümpell as observing a similar condition. Dr. Baldwin found a similar dissociation in the anesthetic areas of a case of fracture after successful operation by Dr. Mixter. It has been suggested that possibly this symptom may arise from root inquiry.

Incomplete anesthesia points to incomplete lesion of the cord. The same is generally but not invariably true of anesthesia of limited or of unilateral distribution. It is generally true of anesthesia limited to regions far below the level of the lesion and in general the varying modification of the different forms of anesthesia at different levels points to incomplete lesion.

Injury to nerve roots alone sometimes appears in the cervical region after stretching and bruising, perhaps with temporary displacement of vertebrae and rupture of ligaments (distortion). In this lesion the sensory symptoms, like the motor, are apt to be limited to the arms. Courtney¹⁹ has discussed this subject in detail and given cases. This condition is illustrated by the following case.

Case V.—A gentleman twenty-nine years of age, ran down the beach and dove too perpendicularly, striking the top of the head. He was not unconscious. When he first realized where he was he tried to put up his arms and found he could not, then tried to move his legs, also unsuccessfully. He was cold. The head was stiffly bent forward. The use of the legs and right arm returned one-half hour after the accident, but it was four or five days before he could use the left arm at all. When I saw him three months later there was moderate tenderness over the cervical region and a distinct swelling over the transverse processes of both sides. There was no paralysis of motion or sensation and no disturbance of reflexes.

The following case seen with Dr. Jackson represents a less degree of the same lesion.

Case VI.—An athletic gentleman of thirty-one, riding in a

hurdle race, was thrown violently over the head of his horse. He turned a somersault and struck on the back of the neck, bending the head violently forward. He picked himself up and walked away though in a dazed condition. There was no numbness and no loss of power. Besides the general lameness and soreness there were pains in the arms and stiffness in the neck. This pain rapidly grew worse on the third day. When I saw him, nine days later, the pain had lessened, but it could be started at any time by slight stroking of the ulnar side of the arm though deep pressure in that region showed no sensitiveness. A tingling and prickling sensation on the ulnar side of both arms was constant. The neck was still somewhat stiff.

The diagnosis "local concussion of the spine" though much less frequently made of late than in former times has still been applied to such cases by certain authors, for example by McCosh²⁰.

Vesical, Rectal and Vaso-Motor Symptoms.—Retention rather than incontinence of urine is the rule in all varieties of spinal fracture with injury to the cord, even when the lesion involves the lumbar region. This probably shows that, even when the sphincter is relaxed, the mechanical conditions are such that the urine does not escape when expulsive force is lacking, so long as the bladder is not over-distended.

There may be either retention or incontinence of feces, more often the former, even though the sphincter be relaxed. The sensation in the rectum and bladder may be preserved in incomplete lesion even though voluntary evacuation is impossible, so that the patient may feel the pressure of flatus or urine over which he has no voluntary control.

The symptoms referable to vaso-motor disturbance are varied and baffling. The most common observation is a rise in the superficial temperature of the lower extremities allied to that observed in hemiplegia from cerebral hemorrhage. This condition is apt to be replaced later by coolness of the extremities and sometimes though not usually, by marked coldness. The skin is generally dry. The rise of local temperature may perhaps be explained by the dilatation of superficial blood vessels due to cutting off the vaso-constrictor influence of the bulbar centers. The subsequent fall may be ex-

plained by the gradual resumption of function by vaso-motor centers previously rudimentary in the cord itself. Such, at least, is the explanation given by Porter²¹, for the corresponding symptoms appearing in the frog after cutting the spinal cord.

The absence of sweating tends to fortify the theory that the principal sweat center lies in the medulla, the fibers being interrupted in their spinal course by the lesion. The absence of sweat combined with congestion of the skin offers additional proof (not needed) that sweat secretion is dependant on specific nerve fibers, not primarily on heat.

The profuse sweating of neck and face in Case III was probably due to irritation of the sweat fibers in the upper dorsal region. It has been demonstrated in the cat that the sweat fibers to the upper extremity leave the cord in the fourth to the tenth thoracic nerves, pass into the sympathetic chain, then upward to the first thoracic ganglion, passing out of the ganglion by the gray rami communicating with the nerves forming the brachial plexus (Langley²²).

Reflexes.—The fact is now generally recognized that the knee-jerk is lost in case of complete destruction of the cord though the pathology of this condition is still under discussion. Cases of spinal fracture offer no exception to the rule.

The superficial reflexes are also generally lost or diminished in these cases, probably always lost in complete lesion. That this loss is not necessarily limited to the reflexes below the lesion as shown by Case I of this paper, in which case the epigastric and abdominal reflexes were lost, as well as the cremasteric and plantar, though the lesion was at the twelfth dorsal and first lumbar.

The Babinski reflex is a common phenomenon in the course of these cases and may appear when no other reflex is present.

Local Signs.—These are generally most unsatisfactory. Either no irregularity is to be detected or an irregularity of doubtful import. Sometimes, however, a distinct knuckle is present and again a distinct depression of the spinous process or a sudden deviation from the vertical line. When such defi-

nite signs are present their aid is invaluable, especially if accompanied by infiltration of the over-lying tissues, together with great tenderness on pressure, and by local pain, becoming extreme when the patient is rolled. Fractured sternum always suggests fracture of spine.



Fig. VIII. Showing variations in dorsal curves in healthy students of gymnastics. All taken facing to the right.

It would seem hardly necessary to mention the physiological irregularities familiar to those who frequently observe the back, and yet it is probable that such irregularities have been mistaken for signs of serious injury by experts as well

as by practitioners who have not had occasion or interest to study this portion of the body. I take this opportunity to show the tracings taken from diagrams representing the routine examination of healthy students at the Boston Normal School for Gymnastics. I am under obligation to the Director, Miss Amy Homans, for the opportunity to copy them. It should also be stated that these curves were taken from newcomers, unmodified by training of the school.

The prominence of vertebra in this picture bears a suggestive resemblance to that of Fig. I in the Presidential Address²³ delivered this year before the American Orthopedic Association. The diagnosis made in that case was fracture, or dislocation, of the vertebra, or both, resulting from a fall, though the patient had full control over rectum and bladder, could move the limbs and complained of pain only in the back, sides and abdomen.

He remained in bed several weeks. After he had been up a few days the prominence was observed of one or two vertebrae in the (lower) dorsal region. This was found to increase.

Another picture represents a still more common irregularity. It may be taken as the subject bends slightly forward and the prominence of vertebral spines in the lower dorsal and upper lumbar region is apparent as a normal photograph will show very readily. For anatomical reasons, flexion in the spinal column is freer in this region than in the upper dorsal. If sprain of the back is present this position is habitually maintained, so that the prominence may be easily mistaken for a permanent one.

The Roentgen rays may be of value in diagnosis. Lathrop²⁴ states that the nature of a fracture can be easily made out by this aid. Kienbock²⁵ states that this procedure is important in showing the variety of fracture and whether the cord or roots are compressed, but adds that it is often undesirable on account of moving the patient about. In the cases which have come under my observation this method has not rendered material aid, though it must of course be of service in case of great displacement.

PROGNOSIS.

The prognosis in cervical cases without operation is generally grave. In Kocher's twelve cases the average duration of life was one week. In Courtney's collection of City Hospital cases the average death occurred within five days. In Baldwin's collection of Massachusetts General Hospital cases since 1870 (36) the average death occurred in five days, all being fatal.

The prognosis in fracture of the dorsal and lumbar region without operation is better than that of the cervical region but is still grave. Lloyd²⁶ quotes Burrell's statistics of Boston City Hospital cases including all localities and showing a fatality of 79% in 82 cases, and those of Gault, 80% in 270 cases. In contrast to these figures he has found a fatality of slightly below 50% in his exhaustive collection of reported operative cases. Keen quotes Chipault's statistics also, (40%) and Thorburn's (57%), and Horsley has laid great stress upon them in favoring operation. These statistics, though impressive are not infallible, since they are open to the objection that many unsuccessful cases are unpublished.

But even if final statistics made under conditions free from this objection, should reveal a percentage of fatality materially higher, the question would still remain whether the lessening of discomfort and disability is not enough to warrant operation. The difference between the bed and the invalid chair, between the healthy and the disordered bladder, and like considerations, should go far to turn the balance in favor of operation. While on the question of statistics, it may be pertinent to suggest that the collaboration of such reports as that of McCosh, while open to other dangers, would be free from the objection I have indicated. McCosh reports a personal experience of six cases of which four were fatal.

In pursuance of this plan Dr. Baldwin has kindly collected for me the cases operated on at the Massachusetts General Hospital since 1870. The operations number fifteen; there were ten deaths, showing a fatality of 66 2-3%. Dr. Munro has kindly sent me an analysis of thirteen personal cases, with fatality of ten. We have here, therefore, a record of 34 cases

not open to the objection of non-reported cases, and showing a fatality of twenty-four, that is, slightly over 70%.

THE QUESTION OF EARLY OPERATION.

The advisability of laminectomy for spinal fractures has offered a fairly fertile field for discussion since the famous verbal duel of Sir Charles Bell and Sir Astley Cooper.

We may perhaps fairly include among those on this side of the water who, with Thorburn and Kocher, regard the operation as justified under certain conditions, Keen²⁷, Lathrop²⁸, Deaver²⁹, Scudder³⁰, Roberts³¹ and McCosh³². Among those whose reports and whose remarks indicate a tendency to free recourse to early operation may be mentioned Hammond³³, Phelps³⁴, Burrell³⁵, Munro³⁶, Weeks³⁷, Means³⁸, Honan³⁹ and Abbe⁴⁰. This division is perhaps too arbitrary, and personal communication shows a general tendency to abandon the conservative view. That the operation is in some quarters questioned and even denounced is shown by an editorial in the *Medical News* of 1900⁴¹, as well as by the address of Gillette already referred to. The scathing remarks of Leyden⁴² were made before the introduction of modern surgical methods.

Of the four divisions under which Thorburn discussed the question in 1899 we may now eliminate two, namely (1) whether the operation is necessarily fatal, or so dangerous as to be unjustifiable, and (2) if successful is it likely to leave the vertebral column too weak to perform its functions. Apprehension regarding the danger of the operation has now been completely allayed. The question as to the weakening of the spinal column has been answered in the negative by the report of many cases. We are left only with Thorburn's second and third questions, namely, (2) how far are the spinal injuries curable without operation? and (3) what is the prospect of improvement by operation? Statistics gathered since 1889 have shown that modern methods of treatment other than operation have done little towards improving the prognosis. Burrell, who originally advocated extension and fixation, argued strongly already in 1893 for early operative

interference, the discussion taking place at a meeting of the British Medical Association, at which Thorburn took a more conservative view. Dr. Burrell assures me in a personal communication that he is still in favor of early operative interference, except in those cases of extensive fracture of vertebral bodies in which the Roentgen rays demonstrate extreme displacement. In such cases he deems it wiser to resort to immediate rectification and fixation. This exception is most reasonable; its validity was illustrated by the following case upon which Dr. Warren recently operated by my advice. He kindly allows me to put it on record.

Case VIII.—A man of forty-eight years fell in the hold of a vessel and was struck by a heavy bale, and was taken to the Massachusetts General Hospital, entering the service of Dr. Warren. Relaxed paralysis of lower extremities followed with loss of all reflexes, and with anesthesia to the groin. There was retention of urine. Marked kyphosis appeared in the dorso-lumbar region. No crepitus could be felt, but there was apparent displacement of the 12th dorsal and first lumbar vertebrae. Fracture of ribs and of the left femur complicated the case, and the patient's general condition was poor.

Operation (on the fourth day) showed great displacement. The cord was exposed with difficulty and was found much bruised. The dura was split and there were signs of considerable extra-dural hemorrhage. The wound was closed without drainage. The patient's condition grew rapidly worse and he died the day following operation.

This case was obviously hopeless whether operation, rectification and fixation, or the expectant plan were followed, but the remote chance of benefit from operation would perhaps bring it under Burrell's rule.

Is the prognosis of spinal fracture in general better with operation? It is doubtless true that in *most* cases a crush of the cord has taken place and that the pressure of fragments has been spontaneously removed. But even if the conclusion of Thorburn is correct that in *most* of these cases no benefit can accrue from operation, his deduction therefrom that operation is *unjustifiable* does not necessarily follow. To his statement that operation should be abandoned he made two important exceptions, namely, (1) injuries to the cauda

equina, and (2) cases in which the lesion is limited to the arches.

However sound these principles may be in theory would the best of diagnosticians claim that it is always possible to state with certainty whether the cord has been crushed, and whether the bony lesion is limited to the arches or not, and is there no danger that in pausing too long over this diagnosis we may sometimes fail to do our patient justice?

Kocher regards operation as out of the question in case symptoms of complete crush have appeared, but we have seen that these symptoms are not to be absolutely relied upon. How, then, are we to decide if not by these symptoms whether we have to do with a cord crushed beyond repair or with one capable of a certain degree of restoration? Kocher favors operation in cases of incomplete lesion when the symptoms have come to a standstill, but if we cannot always diagnosticate the incomplete lesion, nor deny in a given case that the symptoms may improve and finally come to a standstill, is it not wise to operate in cases in which a shadow of a doubt is felt?

In short, whether we have to do with complete luxation fracture or with partial injury, as fracture of the arch alone, whether the transverse process or the vertebral body is invaded, whether the fractured spine is so far displaced that the cord is hopelessly crushed against the body of the vertebra, whether in case of depressed arch the fragments are still pressing on the cord, whether hemorrhage has taken place inside or outside the dura, whether the nerve roots are crushed or irritated only, upon all these questions we may speculate, and upon some draw fairly accurate conclusions, but operation will often disclose a state of affairs quite at variance with our diagnosis.

Should not such conclusions lead us to give the benefit of the doubt to an operation which has proved at the worst neither materially dangerous to life nor detrimental to comfort, and which at least may be expected to lessen pain, to reveal the nature of the lesion with which we are dealing, and to place the cord in the best position for restoration of its

function when such restoration is possible, and if we may add to these comparatively modest claims the hope than an occasional life may be saved, and an occasional patient rescued from helpless invalidism of the most distressing character, should not the burden of proof be laid upon conservatism?

Whether the improvement sometimes seen in operative cases would have taken place without operation is a matter of speculation, nor are we perhaps yet in position to make a final comparison between the results of operative and non-operative treatment. The failure to report unfavorable cases arises not from any attempt at concealment of unfruitful operation but rather from lack of incentive to present a paper with no more attractive title than: "Case of Spinal Fracture; Operation; Death." The only fair criterion for comparison would be an experience accumulated during many years in which free, early operation has been practised. It is in the hope of adding incentive to the accumulation of such experience that this contribution is offered.

What we need now is more facts; those coming later will be best able to estimate their value. With regard to my personal experience I can only say that the course of such operative cases as have come under my observation has been on the whole more favorable than my previous experience and study of the literature would have led me to expect without operation.

OPERATIVE DETAILS.

Without attempting to encroach upon the province of the surgeon it may still be in place to allude to one or two details upon which the neurologist is apt to be consulted.

It is generally wise to open the dura freely; it is apt to be found bulging and tense, and the free escape of the cerebro-spinal fluid does no harm, and may do good by relieving pressure and thus remove a possible bar to the repair of the cord. An edematous condition of the arachnoid is apt to appear, a condition which free drainage may do something to relieve. The additional advantage of opening the dura consists in the free view afforded of the cord itself. I am informed that a

remarkable case has been unofficially reported which still further emphasizes the importance of viewing the cord itself. In this case the cord was found severed and was immediately sutured. At the time of the report a certain degree of improvement had set in. The future history of this case will be awaited with great interest.

The next question the neurologist is asked is regarding the advisability of suturing the dura. Kocher states that this should be done to prevent serious symptoms from lessened pressure due to loss of cerebro-spinal fluid, but of late the custom of leaving the incision freely open has grown in favor and in no case, I believe, has untoward result followed. In Case III of this paper the twitching of face and arms was attributed to loss of the fluid, but the symptoms were only temporary. In no other case have I seen note of symptoms attributable to this cause.

The next question is that of drainage. It has been the usual custom till recently to secure a certain amount of drainage for at least a day or two. That this is unnecessary, however, is shown by the experience of various writers and was illustrated by Case I of this paper. This plan, if only equally successful with the plan of inserting drainage, offers the additional advantage of quick healing, agreeable dressing and freedom from danger of sepsis.

The question of operating immediately or waiting for the shock to subside is one falling rather under the province of the surgeon. Munro favors waiting if the shock is great, whereas Bouffleur⁴² does not regard shock as contra-indicating immediate operation, arguing that the operation is directed toward the relief of the very cause of the shock. If a patient operated on during the shock produced by this grave injury should succumb during or immediately after operation, it would certainly indicate that the original lesion was of so serious a nature that recovery would be out of the question in any case, and immediate operation, though futile, would hardly be open to serious criticism. Still, in case of grave shock it would seem reasonable to delay, especially as some time is needed to ascertain the extent of the symptoms,

whether, for example, they may not be the temporary result of distortion. Early operation does not necessarily mean immediate operation. A delay of hours is not important, but that of days may be, since degenerative processes set in early, according to Lloyd on the fourth day.

CONCLUSIONS.

- (1) There are no symptoms which establish (otherwise than through their persistence) irremediable crush of the cord.
- (2) While total relaxed paralysis, anesthesia of abrupt demarkation, total loss of reflexes, retention, priapism and tympanitis, if persistent, point to complete and incurable transverse lesion, the onset of such symptoms does not preclude a certain degree at least of restoration of function.
- (3) The prognosis without operation is grave.
- (4) While the results of operation are not brilliant, they are sufficiently encouraging to warrant us in making the practice more general.
- (5) In most cases it will be wise to operate within a few days of the injury, but a delay of some hours is advisable, partly on account of shock and partly to eliminate the diagnosis of simple distortion.
- (6) We have no infallible guide to the extent of the lesion. The operation at the worst does not materially endanger life nor affect unfavorably the course of the case, and may at least reveal the lesion and lessen the pain; it may sometimes save a patient from death or from helpless invalidism of most distressing character. Instead of selecting the occasional case for operation, we should rather select the occasional case in which it is contra-indicated (the patient with great displacement of vertebræ, the patient with high and rising temperature, the patient plainly moribund, the patient still under profound shock.)
- (7) The dura should be opened freely; it need not be sutured; drainage is not necessary.

REFERENCES.

¹Thorburn, "Contribution to the Surgery of the Spinal Cord," Lon. 1889.

²Hammond, *Jour. Nerv. & Ment. Dis.*, 1893, p. 477.

³Lloyd, *Jour. Am. Med. Assn.*, April 20, 1901, p. 1116.

⁴Honan, *Med. Times, N. Y.*, 1900, xxviii, p. 217, 218.

⁵Israel, Cited by Chipault, "Chirurgie Operatoire du Systeme Nerveux," 1895, 11, p. 99.

⁶Korteweg, *Idem.* page. 101.

⁷Pyle, *Annals of Surgery*, 1894, xix, p. 664.

⁸Kocher, "Verletzungen der Wirbelsaule," u.s.w. xxv, p. 553, et seq.

⁹Bastian, *Med. Chir. Trans.*, 1890, lxxiii, p. 151.

¹⁰Thorburn, *Manchester Med. Chron.*, 1892, xvi, p. 73.

¹¹Warren, *Boston M. and S. Jour.*, May, 1899.

¹²Starr, *Am. Jour. Med. Sci.* vol. civ, 1892, pp. 15-35.

¹³Thorburn, *loc. cit.* also *Brain*, vols. ix, x, xi, and xvi, and *Brit. Med. Jour.*, vol. ii, 1888.

¹⁴Knapp, *Jour. Nerv. and Ment. Dis.*, Sept., 1897.

¹⁵Seiffer, *Arch. f. Psychiatrie u. Nervenkrankheiten*, 1901, B. 34, H. 2, p. 648.

¹⁶Bolk, *Morphol. Jahrb.* 1898 (25 & 26), 1899 (27), 1900 (27).

¹⁷Thomas, *Boston City Hospital Reports*, 11th Series, 1900.

¹⁸Thomas, *Boston Med. & Surg. Jour.*, Oct. 3, 1901.

¹⁹Courtney, *Boston Med. & Surg. Jour.*, April 5, 1900.

²⁰McCosh, *Jour. Am. Med. Assn.*, Aug. 31-Sept. 7, 1901.

²¹Porter, "Am. Text Book of Physiology," p. 490.

²²Langeley, *Jour. of Physiology*, 1898, Vol. xii, p. 347.

²³Gillette, *St. Paul Med. Jour.*, July, 1901.

²⁴Lathrop, *Am. Surg.*, Phil. 1900, xxxii, pp. 833-842.

²⁵Kienbock, *Wien. klin. Wochenshr.*, 1901, Vol. xiv, pp. 405-409.

²⁶Lloyd, *loc. cit.*

²⁷Keen, "Dennis Surgery."

²⁸Lathrop, *loc. cit.*

²⁹Deaver, Personal communication cited by Lathrop *loc. cit.*

³⁰Scudder, "Treatise on Fractures," 2d Edition, 1901, p. 84.

³¹Roberts, "Modern Surgery."

³²McCosh, *loc. cit.*

³³Hammond, *loc. cit.*

³⁴Phelps, *Jour. Nerv. and Ment. Dis.*, 1893, p. 407.

³⁵Burrell, *Brit. Med. Jour.*, 1894, 2, pp. 910, 911.

³⁶Munro, *Jour. Am. Med. Ass'n.*, Jan. 6, 1900.

³⁷Weeks, *Am. Medicine*, May, 1901.

³⁸Means, Discussion of McCosh's paper, *loc. cit.*

³⁹Honan, *Med. Times, N. Y.*, 1900, xxviii, pp. 217, 218.

⁴⁰Abbe, *Med. Rec.*, N. Y., Mar. 3, 1900, p. 353.

⁴¹N. Y. Med. News, 1900, p. 385.

⁴²Leyden, "Klinik der Rückenmarkskrankheiten.

⁴³Bouffleur, Discussion Munro's paper, *loc. cit.*

REPORT OF A CASE OF EPILEPSY PRESENTING AS
SYMPTOMS /NIGHT-TERRORS, IMPELLANT IDEAS,
COMPLICATED AUTOMATISMS, WITH SUBSE-
QUENT DEVELOPMENT OF CONVULSIVE MO-
TOR SEIZURES AND PSYCHICAL ABERRA-
TION.*

BY W. K. WALKER, M. D.,
OF DIXMONT, PA.

FIRST ASSISTANT PHYSICIAN TO THE WESTERN PENNSYLVANIA HOSPITAL
FOR THE INSANE.

The following case is illustrative of a large number which only late in their course come under the care of the alienist; first manifested in childhood, early indications of the disease are vague and of a character often not appreciated; but they clearly evidence undeveloped, unstable, or degenerate nerve centers, as the later and more violent symptoms express further pathologic involvement of the affected organ. As in all cases rooted in heredity, the problem presented is one of prevention rather than cure. The course of the morbid process can only be modified by careful regulation of the details of the patient's life, and the earlier such regulation is begun the greater are the chances of obtaining results. It follows, therefore, that the first symptom stamped with the impress of a morbid heredity becomes of the greatest significance. The clinical report which follows traces through its different stages a case of epileptic insanity beginning as psychical epilepsy.

T. B., aged thirty-two, accompanied by his brother, voluntarily applied for admission to the Western Pennsylvania Hospital for the Insane, March 17, 1899, saying that he wanted to be cured of a strange malady from which he had been suffering for years. Unable to clearly describe his trouble, he states that he is in a condition which makes people fear him, has caused his wife to leave him, and that he now fears himself, having attempted suicide ten months previously. From September 1898 to March 1899 he had been an inmate

*Read before the Pittsburgh Academy of Medicine, October 28, 1901.

of the Allegheny County Home. Taken into the Hospital, necessary papers being signed later, he was regularly committed as an insane patient.

History as obtained from patient and relatives is as follows:

Family History.—Father dead under circumstances unknown. Mother living, is decidedly neurotic. A half-brother living and well. A full brother died at nineteen of some acute disease. Father of the patient is described as inordinately vain, domineering, of furious temper, and given to periodical drinking. Under the influence of alcohol he was most abusive and violent. Coming home in one of these moods he, one day, quarreled with his wife and, declaring that he "would break her heart," snatched the patient (then two years old) from her arms and was never seen afterward. Between five and six years later the patient was found in the home of a farmer, with whom the father had left him, about twenty miles from Pittsburgh. Although seven and a half years old when restored to his mother, the patient can recall no detail of his life during this period.

Personal History.—Now sent to school it was early noted that he did not apply himself to study, and although he attended regularly until his thirteenth year, he only learned to read (and that but indifferently), and never acquired the ability to do ordinary examples in addition and subtraction. The patient, in referring to his difficulty, says: "My one idea was of devilment and I just couldn't learn anything." During this period he was a great sleep-walker, frequently being found wandering about the house at night, and had night-terrors.

Self-willed and disliking school he, at thirteen, refused to further attend, and obtaining employment in an iron mill, was thrown in contact with older boys and rough men, described by the patient as a "hard lot;" in their company he soon acquired the habit of drinking. He rarely took whisky, but drank all the beer, ale, and porter he could obtain. At sixteen, placed in charge of a small shop, he became very independent and so intolerant of control by his mother and step-father that he refused to remain longer at home and went to live at a hotel where his associates were men much older than himself, with whom he drank heavily. Here, he at one time saw on a table in the proprietor's room, a box of coin; "half in a spirit of mischief," he walked in and, taking a handful, (about a dollar and a half), went down stairs and spent it at the bar. For this he was arrested; pleading guilty, was sen-

tenced to ten months in jail. After serving his term he obtained a position, and, determining to reform, lived at home and stopped drinking "except for an occasional glass of beer." Soon again becoming intolerant of home restraint, he left home and lived among strangers until the age of twenty-two, when he married. During this period of six years he rarely drank to excess, but says that he averaged about a quarter of a keg of beer a week.

One year after his marriage he began to have "queer spells," the first coming on while at work. He describes these as follows: "I was told that I would suddenly leave my press, perform some childish act, then would return to my work. The act was of such a nature as to be interpreted as a bit of deviltry on my part, and my fellow-workmen would not believe me when I told them that I had no recollection of it. At table the desire would often seize me to do some queer thing, such as emptying the contents of one dish into another; or, if reading while having my evening smoke I would suddenly lay aside paper and cigar, cross the room, turn a chair up-side down, then returning to my cigar and paper would commence to read at the point where I had left off. Later, when told of these occurrences I could recall the desire to do them, but not the acts themselves. In many peculiar ways I experienced these feelings and desires; although realizing that they were foolish, *I just couldn't help doing them.* Shortly I began to have spells at night; would twist the bed-clothing into ropes and knots, or get up and search through the pockets of my clothing, but would remember nothing about them when told the next morning." Various acts, of the same general character as those described, were performed at longer or shorter intervals during the ensuing four years; occurring oftenest at night, they came with increasing frequency during the day and were more complicated in character. One morning he took his baby from its crib, intending to carry it to its mother; allowing it to drop from his arms at the top of the stairs, it rolled to the bottom; following, he stepped over it, ate his breakfast and went to work, not knowing that anything unusual had occurred until he was told about it that evening. Upon one occasion he was out drinking with an acquaintance who made some slighting remark which greatly angered the patient, whereupon he soundly thrashed him. When aroused to consciousness the next morning he found himself in a station-house; was able to recall his feeling of annoyance and anger, but remembered no other detail of the occurrence. In another "spell," stepping from a moving street car, he was

found the next morning at the bottom of an embankment, only slightly bruised and with no recollection of the accident. He was at this time averaging two or three "spells" during the day, with three or four at night. Realizing that something was seriously wrong with him, and experiencing no improvement under treatment (he had consulted many physicians), he began to worry about his condition. Until this time (now twenty-nine), he had satisfactorily performed the various duties of machinist, engineer and switchman without once meeting with accident, but his employers, beginning to fear him, transferred him from place to place. Now working but a few days in the week he brooded upon future prospects for his wife and child; although stating that he never really wished to die, he had been heard to remark that if he could not be cured he would rather be dead.

On the afternoon of June 30th, 1898, without reporting to his foreman, he left the shop, took a train for Pittsburgh where he bought a revolver, and, crossing to the Allegheny parks, there shot himself in the left breast. When taken to the Allegheny General Hospital he gave a name not his own. He states that from the time of leaving the shop to his regaining consciousness he remembered nothing, with the exception of the haziest possible recollection of stopping somewhere in Pittsburgh where he must have purchased a revolver; the first clear knowledge of his surroundings was two days after the shooting. He made a good recovery and left the hospital within the week, returning to work within a month. On the first night after he returned to his home he became much excited, upbraided his wife with losing faith in him, and was violent. He states that he remembered nothing of this, but "was told." He attributes his excited condition to worry and state of continuous anxiety concerning his family's welfare. After this night his wife refused to occupy the same room with him, and because of frequently recurring "spells," his worried and anxious state of mind and the loss of his employer's confidence, he now gave up and went to the Allegheny County Home where he remained until March 1899, shortly before his coming to Dixmont.

Examination upon admission shows the patient to be well-formed and well-nourished; height, 5 ft. 10 1-4 in.; weight, 152 1-2 lbs. With the exception of flattened cranial arch and moderate cranial and facial asymmetry, he presents no stigmata of degeneration, and is a fine specimen of physical manhood. Tongue is broad, pale, flabby and tooth-marked, but clean; bowels regular, and there is no discoverable abnormality of any organ. The tendon reflexes of the

right side are slightly exaggerated as compared with those of the left, but there is no great deviation from the normal. The superficial reflexes are exaggerated; right cremasteric is plainly marked; left cannot be elicited. Muscle irritability is increased generally. Urine: dark amber in color, acid in reaction, sp. gr. 1030, dark ring of urates; contains neither sugar nor albumin.

During the first night in the hospital (March 18) he had an attack described by the attendant as follows: "Awakening he suddenly sat up in bed, glared about him, then fell back as though fainting. In less than a minute he was on his feet, overturned the mattress three or four times, picked up his clothing, carefully searching through each pocket, then returned to bed, sleeping until wakened in the morning." When, questioned about the occurrence it was found that he had no recollection of it.

March 19. Awakening from a light and disturbed sleep, he got up, and, running the length of the ward, made an attack upon the attendants. After being held for ten or fifteen minutes violence subsided and he slept.

March 21. This morning (9 o'clock) he suddenly fell to the floor where he lay "trembling or quivering from head to foot" for a minute or more, then arose and went about the ward as though nothing had happened. Examination half an hour later showed the tongue to be bitten. The patient states that this accident has never before occurred.

For a day or so following this attack, the patient was in a slightly dull and confused state, but, further than this, there were no manifestations. In the first month at the hospital he was given no medicine other than phosphate of sodium, as needed to combat tendency to constipation, with careful regulation of diet. During this period he had twenty-eight paroxysms (all nocturnal) of the following character: From a disturbed sleep he would seem to half awaken, twisting and turning his body and tossing his head, arms, and legs from side to side; this lasting from twenty seconds to a minute. Occasionally it would be followed by his sitting up in bed, staring about in a dazed manner with, on three or four occasions, attempts to get out of bed. Occurring as frequently as three or four times nightly (though usually but once) they were oftenest observed between one and four o'clock A.M. During the month of May he was placed upon sulfonal gr. X, given at bedtime. Paroxysms occurred every night but three; from one to four nightly; total, sixty-five. In time of occurrence and in general characteristics they did not differ from those occurring in April. At no time did he attempt to

perform complicated acts, such as getting out of bed, twisting the bed-clothing, etc.

June. Paroxysms every night but three, one to three nightly; total, forty. Of same general character; no complicated automatisms.

July. Now placed upon bromides (gr. X. *t.i.d.*) he had but twenty-seven paroxysms, in one of which he twisted the bed-clothing and made attempt to get out of bed.

August. Bromides were increased to gr. XV. *t.i.d.* He had nineteen paroxysms of same general character, but lighter and of shorter duration; no automatisms.

September. Bromides were continued as above. Twelve light attacks.

October, November and December presented nothing unusual, paroxysms occurring as in the preceding three months. It was noted, however, that he gradually became more irascible and surly and showed a tendency to domineer over weaker patients and attendants.

December 24. Following some slight difficulty with a fellow-patient, he fell in a typical epileptic paroxysm with clonic convulsive movements, which were more marked upon the right side of the body, and continued for a minute; after the convulsion he slept. Within an hour he had two more of like character and severity; these left him dull, dazed and stupid. In the following night he attacked the attendants in an automatism, and they were compelled to hold him for half an hour, after which he slept. In the morning he seemed much confused, his manner was best characterized as silly but, in the main, good-natured. His normal condition was not regained until three days later when it was found that he had no recollection of events occurring during the first day of the attack, and but indistinct recollection of the succeeding two days.

Shortly after this attack he manifested mawkish religious tendencies heretofore not shown; stated that he had not attended religious service ten times during his entire life. From time to time there were exhibited slightly exalted states in which he talked much of a sense of well-being; felt "as free and light as air," etc. Following these periods he was especially irritable, suspicious, and quarrelsome. Hitherto no marked alterations of the sensory perceptions had been noted, but subsequent attacks, when at all marked, and whether psychical or motor in character, were preceded by altered or perverted sense perceptions in some form.

January 4, 1900. He suffered an attack in which were manifested varied and characteristic phenomena of epilepsy

indicating the extent of involvement of the higher centers; it well illustrates the mechanism of development of intellectual and emotional states into irresistible tendency to action. The prevailing emotional condition resuscitates sensations, mental pictures, and even emotions recently or formerly experienced in the course of his conscious life, (or at least bearing reference to some actual occurrence), and, thus intensified, action promptly supervenes with, at this point, loss of consciousness and memory. I take the liberty of describing it somewhat in detail.

After some days of unusual depression and anxiety he became excited, demanding that he be allowed to see the doctor at once. When seen, he was in an exalted mental state, and so excitable as to be moderately incoherent. Desirous of telling me that he was experiencing some great change, he said: "I feel so differently—everything seems changed—all that touches me seems different from that it was—I feel as light as air." His face was flushed and manner mildly maniacal. Excitable condition continued until the following day when he was more irritable than usual. In the afternoon while at a game of cards with a fellow-patient, of whom he had been long suspicious, it was noted that he seemed preoccupied and "absent-minded." In the course of the game the patient inquired if his companion knew E. B. (mentioning a young woman of former acquaintance). Replying that he thought he had met her, and that she seemed a gay and jolly girl, the patient at once sprang upon him, saying that he would allow no girl of his acquaintance to be so insulted or to have her character called into question. Taken in charge by the attendant his fury continued; demanding that he be allowed to leave the hospital at once, he forced his way to the room of the supervisor, grasped him by the throat and attempted further violence. In this furibund state he was placed in restraint and continued to rave until six hours later, when, under the influence of large doses of sulfonal, he slept. At five o'clock the following morning he had a hard motor convulsion followed by stuporous sleep from which he awakened in a dazed, confused state, but inclined to motor activity. Referring to the paroxysm of the previous afternoon, he said: "I'm coming around all right doctor; I know I've had one of my spells, for I remember all about my feeling so much better for the last few days and I guess that meant I was getting ready for it. I don't remember much about the fuss of last night, except what led up to it. My first recollection is of seeing, just before falling asleep, a shadow on the wall which looked like a picture I had at home, entitled 'The Hand-

writing on the Wall.' I realized that it was only a shadow, or that it was imaginary, yet it appeared in vivid colors and in minute detail. I offered up a prayer and, at once there seemed revealed to me much that I had not previously known—what I had been and what I was to be," etc., etc. The patient here entered into detailed, though somewhat incoherent description of hallucinations of sight, and of hearing the voice of God; these formed the basis of the delusion (temporarily entertained) that he had a direct communication from God. One week later, upon recovering from this attack, he minutely described his suspicions and feelings of irritation toward the patient with whom he had been engaged at cards at the onset of the paroxysm.

In its subsequent course there were presented certain variations and modifications of the symptoms I have described, change in the character of the early stage of the paroxysms being the most prominent. The recollection of events leading up to the final outburst, and even of the sensory, ideal, and emotional contents of the psychical equivalent of the convulsion, seemed clearer. Later, there was distinct overlapping, or intermingling, of what might be termed the normal, or inter-paroxysmal and the abnormal, or epileptic states, with lessened appreciation in the former, of the morbid character of false sensations, ideas and beliefs experienced during the latter periods. Analysis of these phenomena involves consideration of sub-consciousness and states of dual consciousness, which elucidate many morbid psychic phenomena. Briefly, it may be said, that in this case, the conscious personality seems gradually to have been encroached upon, or merged into, the automatic or sub-conscious self.

Kept continually under the influence of bromides during the remainder of his stay in the hospital, there were no further attacks of typical motor convulsion, and but four to eight monthly of the irregular, semi-coördinated movements of the extremities during sleep. He was transferred to the Insane Department of the Allegheny County Home in November, 1900.

We have here a patient of psychopathic heredity, presenting in early childhood the phenomena of night-terrors and somnambulism, defective inhibition, precocious alcoholism, impellant ideas and obsessions, complicated automatisms, with subsequent development of convulsive motor seizures, and the psychical aberration so characteristic of epilepsy. The frequent attacks, which vary as to minor details, are uni-

formly progressive in their development, and evidence successive involvement of the intellectual, emotional, and motor spheres. As specific features of their epileptic nature we note: paroxysmal and periodic character, sudden onset, automatisms showing activity of the higher nerve centers attended with absence of consciousness, memory, and spontaneous will; sequelæ of epileptic occurrences such as confusion, suspicions, violent temper, and tendency to depression in the intervals—all controlled, or at least markedly modified by the administration of bromides.

Of special clinical interest among its varied psychic symptoms are: first, the earliest manifestation in the form of simple irresistible impulse unaccompanied by emotional states. We have, in the words of Ribot, "sudden impulse followed by immediate execution without the understanding having had time to take cognizance of it. The act has all the characteristics of a purely reflex phenomenon which takes place inevitably without any connivance of the will. It is a true convulsion which differs from the ordinary convulsion only because it consists of movements associated and combined in view of a determined result."

We next see irresistible impulses to theft, and to suicide and homicide, the last two being the outcome of emotional states; thus intensified they are automatically carried into execution. The automatic act is a very complex syndrome; it has been considered "the final term of a morbid process, of which the idea is the starting point and the anxious emotion the intermediate stage." (Ribot.)

In the progress of the disease there are frequently manifested anxious states having their origin in constant brooding over his condition, with its possible consequences to self and family, and we now note "obsession of emotional ideas" accompanied by impulsion, *i.e.*, irresistible action. Thus, the fleeting idea of suicide, which was never seriously entertained while in full possession of consciousness, is carried into almost successful execution under the influence of depressive emotions of which such act might be the logical outcome. In this case, we have seen that whether the idea was of some

simple act as theft, of discouraging outlook or prospect, or of injury received, that it has developed into complicated emotional states of which the patient was usually conscious; ending in the performance of acts resulting from the dominant emotion, but of which he subsequently has no recollection.

The later suspicions and delusions of persecution so characteristic of the epileptic psychosis, develop in like manner, with the commission of acts in keeping with the accompanying emotional state. Thus, under the influence of suspicions and ideas of persecution there is the accompanying emotion of anger, rapidly passing into wild and uncontrollable fury, followed by deeds of violence. With the advance of the cerebral degenerative process there is seen change in the character between the paroxysms, which more closely approximates that peculiar to the epileptic insane. Morbidly suspicious and irritable he is ever on the alert for offences, and whether these are real or imaginary, because of defect or abolition of the higher controlling or inhibitory powers, the intervening stages between idea and act are traversed as promptly and inevitably as the different stages of any reflex act.

The next stage in the progress of his disease is marked by the execution of irregular and imperfectly coöordinated movements carried out during somnambulistic states; these, with the subsequent development of true convulsive motor seizures, complete the cycle of epileptic occurrences which here develop in the reverse order of that commonly observed; passing by almost imperceptible gradations from its first vague manifestation in irresistible impulse, through the stages of automatic act, emotional obsession with complicated automatisms, to motor convulsive seizures and that settled state of mind peculiar to the epileptic.

The earliest defect in inhibitory power, with, even in early life, irascibility and intolerance of parental control, must be considered as syndromes occupying a prominent position among the phenomena of degeneration. With the specific clinical features above named, the case presents a coincidence

and correlation of symptoms representing the onward progress and different stages of a psychosis which must have been degenerative from the beginning. Having its fundamental origin in defect of organization and inherited instability of nerve centers, we see early complication in the element of alcoholism, which may be regarded as one manifestation of the psychosis, but it is also a factor materially hastening, and perhaps modifying, the progressive development of the disease.

It cannot be said that we yet have definite knowledge of the underlying lesion in epilepsy; whether it be of structural peculiarity, or degeneration of the large cells of the second layer (Bevan-Lewis) or the peculiar gliosis described by Chaslin and Féré, the consequent nutritional impairment is revealed by symptoms which vary with the site of the cerebral lesion. Early manifestations in the case here reported are indicative of its origin in the higher cerebral centers, with gradual progression to involvement of the Rolandic area.

The medico-legal aspect of this case is indicated, in a general way, by the attempts to execute violent ideas (suicide and homicide). Whether considered from this view-point, or of etiology and clinical history, it presents many instructive features. Analysis of its changing manifestations—bearing as they do the “brand-marks” of the epileptic psychosis—shows them to be but different symptoms governed by the same laws.

A CASE OF MYELITIS, EXHIBITING THE RESULTS OF
CO-ORDINATION EXERCISES.*

BY JOHN K. MITCHELL, M.D., OF PHILADELPHIA.

Joseph Donohue, aet. 22, bartender, was admitted to the Orthopedic Hospital, April 14, 1899, with the following history: Family and personal history negative. He denies ventral disease altogether and presents no evidence of it.

He had typhoid fever in June of 1898, of no unusual severity, but was not able to go to work again until December of the same year, when he worked for two months, feeling very well. He then began to have numbness in the whole of the right foot, extending up to the knee, accompanied by weakness. It did not begin in the left foot until it was well advanced in the right and then extended in the same manner, spreading slowly upwards on both legs until it reached the trunk and stopped at about the level of the umbilicus. As the trouble advanced, the legs grew spastic and a girdle sensation appeared in the early months of 1899, which was, however, not very decided until a short time before his admission to the hospital. It is sufficient to say that at that time, (April 1899), his gait was very spastic on the right side, station was bad, knee-jerk was extremely exaggerated; there was ankle-clonus on the right side, knee-jerk somewhat less exaggerated and no ankle-clonus on the left. A condition of tetany was readily developed by repeated blows on the patellar tendon of the right side. There was impaired control of the anal and vesical sphincters. Lying in bed the patient could use the legs strongly, but only for one or two successive efforts. He could not stand or walk. There was no wasting, hot and cold were well distinguished, but after a considerable interval; touch-sense was decidedly dulled from the lower quadrants of the abdomen downward; there was nowhere any tenderness except in a small area of the lower dorsal region of the spine, and no sign of any cerebral disturbance. The disease was considered an incomplete transverse myelitis, probably due to typhoid fever.

The possibility of its being due to an ascending neuritis, reaching and crossing the cord was considered, but the course of the trouble, as well as the character of the changes

*The case was reported and the patient exhibited at a meeting of the Philadelphia Neurological Society, November 26, 1901.

in sensation, seemed to negative this supposition. Neuritis as a consequence of typhoid fever is not at all uncommon, though I have never seen a case in which it affected the cord.

Myelitis as a sequel of typhoid is much more rare; my own experience includes but one other case, and that a doubtful one. It is to be regretted that we could secure no fluid from the spinal canal by tapping, as a microscopic study of it might have confirmed the diagnosis.

In the Spring of 1900 he was admitted to the hospital again. The only change at this time was that there was very marked spasticity of the left leg; but the whole condition had grown steadily worse after a preliminary improvement when he was first under treatment at the Infirmary. A lumbar-puncture was attempted June 1900, but no fluid was secured. This time careful treatment with exercises was begun and was continued during the summer. At first he was kept entirely in bed, the legs exercised with coördinate and resisting movements while he lay upon his back. The knee movements were chiefly simple flexion and extension, made slowly; then efforts to direct the feet to a given point, such as the hand of the attendant held above the bed 18 or 20 inches from the feet. He was allowed in three or four weeks to get up with crutches or sticks, and was instructed in standing exercises with his back against the wall, at first with the eyes open, afterwards with the eyes closed, and presently moving away from the wall a little. As his legs grew stronger, all these were more elaborated; his station improved progressively; he began to do a sort of goose-step movement, standing upright and raising the knee at a right angle with the body, then extending the leg upon it and throwing the foot far forward before it was put down; a similar movement followed with the other leg. He walked patterns drawn upon the floor, and practised in turning short in a small circle. Whenever one of these exercises was well done with the eyes open, he began to practise it with closed eyes. They were never allowed to go to the point of fatigue, and he was encouraged rather to do them for a short time several times a day than to attempt to do much at once, but it was six months before he grew strong enough to walk more than six or eight squares without resting.

At this time he had electricity and massage as well as the exercises. He was discharged in December very greatly improved. He returned in the latter part of April of the present year, finding that his legs were again growing weak and that if he walked enough to fatigue him at all, he lost control of the sphincter ani. The knee-jerks were less exaggerated

than before, and no clonus could be discovered in the left leg, though it was still present in the right.

I attributed this partial relapse to over-exertion, and put the patient to bed for an entire rest of two or three weeks. Blisters were applied to the spine on alternate days. The weakness of the rectal muscles was treated by electricity, and after about three weeks he was got out of bed slowly and co-ördinate exercises begun with a gradual increase. The improvement was rather astonishing, considering that this was his second relapse, and that relapses notoriously do less well than the original trouble.

(When the patient was shown before the Neurological Society the knee-jerks were both very spastic, there was ankle-clonus on both sides; both the patellar phenomenon and the clonus were less on the left side. The patient's station was perfect, whether the eyes were open or closed. He could stand on one leg easily, walked steadily forward or backward, and showed his excellent balance in various complicated movements.)

NEW YORK NEUROLOGICAL SOCIETY.

October 1, 1901.

The President, Dr. Joseph Collins, in the chair.

Contribution to the Study of Spinal Fracture, with Special Reference to the Question of Operative Interference.—Dr. George L. Walton, of Boston, presented a paper with this title.

Dr. Charles L. Dana said that his own experience had led him to believe that the operation is practically safe, and that the spinal column itself is not injured by the operation. He had not had any fatal results in his operative cases, about half a dozen in all, and two of them were cases of injury in the cervical region. It was a matter of astonishment to him that such long and severe operations could be done upon these patients without sacrifice of life. He must confess, however, that the ultimate results of these operations had not been satisfactory, according to his observation. He had seen some improvement in motion and in the bladder symptoms in these cases, but that had been about all, and it was quite possible that such improvement would have occurred without operation. If by clinical observation one could be sure that the cord was crushed one should not recommend operation. This could often be done. If there was a line of anesthesia coinciding with the line of paralysis, and this co-existed with the absence of knee-jerks he would feel almost positive that the spinal cord had been cut across, although there were certain exceptional cases affecting the cervical region which did not seem to follow this rule. It seemed to him that the operation performed by Lloyd, and which the speaker had seen employed by Abbé, was the quickest, safest and most effective. The author had done a service in bringing up this subject and urging a more persistent effort to relieve this distressing class of cases. The general opinion among surgeons was that these were cases which hold out but little hope of benefit from operation.

Dr. Edward D. Fisher said that he had had a number of cases of fracture of the spine under his observation, and in the main he would agree with the reader of the paper that an operation is advisable. He would do this because death rarely occurs as the direct result of the operation. Where there had been a fatal termination he felt that the same result would have occurred if there had been no operation. In two cases that had been under his observation, in which cocaine had been used, the operation had been done as well as under general anesthesia. In one of the cases the injury had followed a dive in shallow water, and in the other an acrobat had dived off the shoulders of another acrobat. The lesions had been about the same in each case, and because of the situation of the lesions, they had been afraid to administer a general anesthetic. When the cord was touched there was a sensation of pain, but no localization, and the operation was conducted without any more shock than with general anesthesia. He agreed with the reader of the paper that it was almost impossible to make an accurate diagnosis between cases in which the cord had been partially or completely crushed. He did not believe that a lesion through the cervical region, with an absolute loss of reflexes, positively indicated that there had been a complete destruction of

that region. Sometimes on cutting down and exposing the cord one observed very little change in the appearance of the cord until the dura had been cut. Even then there might be very little change because of a hemorrhage in the substance of the cord. The distribution of the sensation in almost all of these cases was irregular, so that the classical picture was rarely observed. In many cases where there had been absolute loss of reflexes there had been partial recovery—indeed, in his experience it had been the rule to see only partial recovery.

Dr. Graeme M. Hammond did not think it was always possible for the neurologist to say that the symptoms presented were positively indicative of complete destruction of the cord. In one case coming under his observation, in which a young man had fractured his fourth cervical vertebra by diving in shallow water, there had been evidence of complete injury to the cord. He had been operated upon a year or two afterward, but it was needless to say there had been no resultant improvement. In another case in which there had been an incomplete injury to the cord, and in which operation had been resorted to shortly afterward, there had been complete recovery and the man had returned to his occupation of wrestler. Within a few days he had seen a very interesting case. It had been first reported four years ago. Several bales had struck the patient on the back and almost immediately he had presented the symptoms of tabes, pure and simple. He had no reflexes and almost complete anesthesia with the Romberg symptom. He had been operated upon twelve weeks after the injury, and had made a complete recovery with a return of reflexes. He had seen this man within a few days, now twelve years after the injury, and he now presents absolutely no symptoms of injury to the cord. Such cases naturally led one to be rather optimistic in regard to the mild cases. The fact that there was spinal deformity meant nothing, for, in Pott's disease of the spine there was often very marked deformity without any spinal cord symptoms. If the symptoms present in a given case pointed to the total transverse lesion of the cord, there was nothing to be done but operate, and even this gave a forlorn prognosis. In the milder cases the operation should be undertaken as soon as possible, as here the prognosis was much better. He would operate in any case no matter how hopeless it seemed, because nothing else could be done, and the patient was no worse off than before. In the milder cases it was our duty to operate.

Dr. B. Sachs said that the question arising regarding operative interference in these cases was similar to the question of surgical interference in Pott's disease or in cases of tumor. The answer to this question must depend largely upon the stage. It was the fashion to delay surgical interference until everything else had been tried, whereas if surgical interference was to do any good it should be practiced at once. In cases of fracture of the spine, therefore, whether complete or incomplete, operative interference at the earliest stage could do no harm and might be productive of a great deal of good. The differential diagnosis between complete and incomplete crush was difficult. When the crush was complete the reflexes were almost invariably absent, whereas if there was more or less maintenance of conduction through the cord the reflexes were apt to be impaired or exaggerated according to the site of the lesion. The dissociation of sensation was, in his opinion, an exceedingly valuable symptom, as it pointed out the rather moderate involvement of the cord. He was

inclined to think that it was often a root symptom and not an indication of absolute involvement of the cord itself.

Dr. J. Arthur Booth said that his experience had been limited, but he had not seen any great benefit from operation, although it should be said that operative interference had been resorted to at a late stage. It seemed rational to treat fractures of the vertebra on the same general surgical principles as fractures in other parts of the body. In two of his cases the complete paraplegia existing prior to operation had remained unaffected, though there had been some diminution of anesthesia and improvement in the condition of the bladder.

Dr. Joseph Fraenkel referred to a case at the Montefiore Hospital of fracture of the spine. The patient had been admitted a year and a half after the accident, and had been walking around since the injury. Although the operation had been done late it was worthy of note that three years and a half after the injury the autopsy showed that the cord had not been entirely destroyed. About six years ago he had presented to this Society a paper on the differential diagnosis between complete and partial destruction of the cord. In four cases in which the reflexes had been lost the autopsy had shown complete destruction in only one of the cases. That shock alone was sufficient to destroy the reflexes was an old physiological dogma. He wished to insist that it was important to note the condition of the deep and superficial reflexes, because for the maintenance of the deep reflexes it was necessary that the cord be intact, whereas this was not requisite for the superficial reflexes. The plantar reflex was the one that was not destroyed.

Dr. George E. Brewer said that there was a greater inclination in Boston than in New York for operating upon these cases. He had personally passed through various stages of opinion regarding operating on these cases. At first he had been influenced by those around him in Boston. The general rule had been when there was paralysis below the point of injury and involvement of the sphincters to do an exploratory operation. He could not recall a single one of these cases that had been benefitted by the operation, though he felt that they had all been examples of complete crush of the cord. In New York City the surgeons had been perhaps a little too conservative. Injury in these cases is either a crushing one or there is a hemorrhage within or without the cord; hence the outlook from operation is not good. The cases of hematomyelia recover without operation; cases of severe crushing injury, even with operation, do not. This seemed to be the prevailing view here at the present time. Possibly some of the early successes were in cases of unrecognized hematomyelia, in which, of course, recovery would have taken place entirely independently of the operation. Last winter he had seen a girl with injury of the last lumbar vertebra. There was a sensory paralysis and complete loss of control of the bladder and rectum. Dr. Hammond had examined the case, and believing that there was no transverse lesion, had urged operation. The speaker had performed laminectomy, and had found only a small spicule of the bone. The patient had recovered from the operation, and at the end of six weeks had regained control of the bladder and rectum. When seen two or three months after the operation she had almost completely recovered. Had it not been for the advice of Dr. Hammond he would have looked upon this case as an improper one for operation. It had been his practice to introduce in these cases a very small rubber drain.

Dr. A. C. Brush, of Brooklyn, said that he had seen quite a

number of these cases. In the past six months he had had several X-ray photographs made, and they had been so variously interpreted by those who had seen them that they had ceased to have any value. A case was mentioned in which great improvement had followed the removal of a spicule of bone in a man brought into the Kings County Hospital after a fall. A diagnosis had been made of fracture of the arch. An immediate operation had been done, and the arch found to be broken down, but this was not pressing upon the cord, but a fragment of the tenth dorsal vertebra. This case had impressed him with the value of operative interference as a means of diagnosis.

Dr. Joseph Collins said that he had only seen a few cases of fracture of the spine, and these at a remote date from the injury. The future of spinal surgery for broken back, he affirmed, lay entirely in the hands of the neurologists—in other words, upon the diagnosis. This had been clearly brought out in the cases cited by some of the speakers this evening.

Dr. Walton, in closing, said that the statement made by Dr. Dana regarding the symptomatology of complete crush of the cord seemed to impeach the observation of a number of trustworthy observers. Regarding late operations he would say that if the pressure had been removed there was no use in operating, and if the pressure had existed for many months there was little prospect of doing any good by operating. Theoretically the late operation would be useful in cases in which symptoms arose from the formation of callus on the inside of the laminae and its pressure on the cord, but his personal experience did not include any case of this kind. Instead of picking out an occasional case for operation he would advise picking out an occasional case in which an operation should not be done—in other words, a case in which shock was great and the patient was practically moribund.

PHILADELPHIA NEUROLOGICAL SOCIETY.

October 22, 1901.

The President, Dr. James Tyson, in the chair.

Dr. John K. Mitchell showed a book from which one of his patients had cut out the figure three or multiples of three wherever he could find them.

Dr. F. X. Dercum stated that Dr. Mitchell's case was evidently one which was to be classified with the neurasthenic or neurasthenic-neuropathic insanities. Similar obsessions to those presented by Dr. Mitchell's patient are met with among the so-called "counters" and "mathematicians" who manifest irresistible enumeration, and have been described by Régis, Legrand du Saule and others.

Dr. Wm. Pickett read a study of paresis occurring in 149 cases at the Philadelphia Hospital.

Dr. Charles K. Mills said he did not think that Dr. Pickett had fully maintained by his statistics one or two of the points discussed. With regard to the demented type of general paresis, for instance, Dr. Mills was not entirely satisfied that the cases classed by Dr. Pickett as instances of general paresis were always true examples of this disease, as his crucial tests were not closely applied in making his differentiation. He gave for instance a little more than fifty per cent. of cases in which pupillary phenomena were present, but he failed to show how many of the cases constituting this percentage were included in his list of patients of the demented type, that is, cases without the classical delusions and usual course. Dr. Mills further said that it was well known that he (Dr. Mills) was a believer in the syphilitic origin of general paresis in perhaps eighty-five per cent. to ninety per cent. of the cases. He believed, however, that hospital statistics were of little value in determining this fact. His own conviction had come not only from a study of the literature of those who believed in the syphilitic origin of the disease, but especially from his experience of nearly a quarter of a century in private practice. It was much easier to get reliable statistics as to the existence of syphilis in the previous history of paretics in private practice than in hospital or dispensary work.

Dr. F. X. Dercum said he had occasionally employed the term "quiet cases of paresis" in his lectures, though in his published writings he had used the expression of "simple demented form" of paresis. All of the forms of paresis are demented, and when we speak of "simple demented form" we mean, of course, those cases in which the expansive or depressive delusions are absent. The number of the simple demented cases Dr. Dercum was convinced was quite large. He thought it was doubtful, however, whether it was as large as the statements of Dr. Pickett or Dr. Mendel would indicate. We should remember that many cases which are confined in the asylums have passed through expansive or depressive periods, short perhaps in duration, and of which periods there is no history or a very inadequate one. In studying paresis we should also bear in mind the occurrence of that interesting though rare form, circular paresis, of which Dr. Dercum had seen one example. In this patient cycle after cycle of de-

pression and expansion followed in succession, until finally a simple dementia was established.

Dr. Dercum did not believe that there is any relationship between epilepsy and paresis. It is not surprising that paresis may occur in an epileptic, just as paresis may supervene in patients already suffering from other organic or visceral diseases. The fact that history of epilepsy followed by paresis is so rare is of sufficient significance.

He also believed that the term alcoholic paresis is intrinsically incorrect. There is not any direct causal relation between paresis and alcoholism. Paresis is a disease which bears definite relations to syphilis, not to alcoholism. Alcoholic dementia is one thing, paresis is another. Further, almost all, if not all, male paretics drink to excess during the earlier period of their disease. It is not surprising, therefore, that we should find occasionally elements present in the delusions which suggest alcoholism, such as the delusion of marital infidelity. However, the physical stigmata of paresis are unmistakable, and the rarity of alcoholic elements in the mental phenomena is again significant of the unimportant rôle played by alcohol.

In regard to idiopathic confusional insanity Dr. Dercum went further than to make the statement that it is rare. He believed that it does not exist.

In regard to heredity he may have been misunderstood by Dr. Pickett. He did not believe that paresis as paresis is hereditary. He did believe, however, that inherited neuropathies are of great importance in rendering the patient vulnerable to paresis.

Dr. Alfred Gordon thought that Dr. Pickett's paper would have been more complete if Dr. Pickett had added to his exhaustive study the question of the influence of hereditary syphilis in paresis. In the *Archives de Neurologie*, June, 1901, Régis published his fifth case of juvenile paresis occurring in a patient with a clear history of hereditary syphilis. The patient was a young man of twenty-three years, whose parents were distinctly syphilitic. Until twenty years of age he had been considered very intelligent, but at that period he became mentally incapacitated and gradually developed paresis. This case corroborates the general opinion that juvenile paresis takes generally a demented form.

In reference to pupillary changes Dr. Gordon wished to state that several years ago he made a comparative study of pupillary changes in all forms of insanity and paresis. The striking results obtained were those concerning paresis. While in other forms of insanity Dr. Gordon found very frequently pupillary inequalities there was rarely myosis or mydriasis. In paresis, on the contrary, pupillary inequalities were almost always associated with myosis or mydriasis of one or both eyes. Whether this observation can be of some aid for diagnostic purposes he did not know, but it deserves mention for future investigations.

A Case of Multiple Lesions of the Spinal Cord and Cranial Nerves, with Amyotrophy, Probably due to Syphilitic Infection.—Dr. Max. H. Bochroch and Dr. Alfred Gordon read a paper with the above title.

Supraorbital Reflex.—Dr. Joseph Sailer read a paper on the supraorbital reflex.

Tumor of the Frontal Lobe.—Drs. F. X. Dercum and W. W. Keen reported two cases of tumor of the frontal lobe.

Dr. Charles K. Mills said that it appeared that the osteoplastic flap in both of these cases had been made so as to uncover the motor region, the posterior line of the opening being at a position some distance back of the central fissure. It seemed to him that in both of these cases the posterior limits of the opening should have been the central fissure, as the localizing symptoms clearly pointed to the prefrontal region. Motor agraphia or orthographia was present in the former, with special psychical symptoms, and no persisting paralysis of any sort. The tumor was an enucleable one, and therefore the changing condition of motor agraphia was to be explained by the fact that the symptom was due more to pressure on, than to destruction of, the motor agraphic region. In the second case the symptoms were chiefly psychical. A tendency seemed to be exhibited to confine operations to uncovering the motor area if the study of the cases presented motor symptoms of any sort. We should by this time have reached a more advanced position in our efforts at localization. We can at least map out five distinct areas on the lateral convexity of the hemisphere for osteoplastic operations, namely: (1) an area whose posterior limit is the central fissure; (2) an area whose anterior limit is the central fissure or point just anterior to this fissure; (3) an area which uncovers the angular convolution; (4) an area which uncovers the occipital lobe; and (5) an area which uncovers the posterior extremities of the first and second temporal convolutions and adjoining region. In the absence of astereognosis and persisting motor symptoms the clinical phenomena present in both of these cases pointed unmistakably to the region in front of the central fissure. Why, therefore, trephine for one or two inches posterior to this fissure, necessitating in the end an unusually large opening, rongeuring, and therefore loss of time?

Periscope.

Rivista di Patologia Nervosa e Mentale.

(Vol. vi, fasc. iii, Nov., 1901.)

1. The Telencephalon of the Scylii. E. CRISA FULLI.
2. Mental and Nervous Changes from Hepatic Intoxication. G. CATOLA.
3. New Toxic and Therapeutic Properties of the Blood Serum of Epileptics, and their Practical Application. C. CENI.

1. *The Telencephalon of the Dog Fish.*—In a lengthy and scholarly paper, the author gives the results of his investigations as to the anatomo-functional value of the forebrain of the Scylium.

2. *Changes from Hepatic Intoxication.*—Prior to 1860 pathologists had not considered hepatic disturbances as an etiological factor in the production of diseases of the central nervous system. About that time, Brown-Séquard, Teissier and others advanced the theory that certain nervous diseases might depend directly upon toxic substances retained in the blood, as in diseases of the liver. Up to this time the hypothesis has rested solely upon clinical observation. The author, however, reports a case exhibiting symptoms of ataxia, with intermittent periods of mental excitation and delirium alternating, at times, with somnolence or coma, in which autopsy showed cirrhosis of the liver with fatty degeneration of its cells. Under the microscope, multiple lesions of the nervous system were observed, notably an interruption in the continuity of the parenchyma of the cerebral cortex. To this condition, embracing distention of the perivascular and pericellular sheaths, congestion of the blood vessels, lesions of the vessel walls, etc., Levi has given the name of histological cerebral edema. The author further observed fragmentation and diffusion of the chromatic cellular substance and degeneration of the pyramidal fibers; lesions which may undoubtedly be attributed to a toxic agent; the whole symptom-complex suggesting auto-intoxication. The variation and intermission in the psychical manifestations are thought to depend upon increase or diminution in the quantity of the toxic substances circulating in the blood.

3. *Toxic and Therapeutic Properties of the Blood Serum of Epileptics.*—Acting upon the theory that epilepsy is due to toxines circulating in the system, C. Ceni has sought to produce immunity by artificially increasing the toxine elaborated in the organism, with progressive injections of serum from epileptic blood. For this purpose he used two methods: (1) injection in an epileptic of repeated and progressive doses of the blood serum of another epileptic; (2) reinjection in an epileptic of blood serum previously extracted from his own organism; this also in repeated and increasing doses. When this latter method was used, it was considered advantageous to allow several days to elapse between the extraction of the blood and its injection, in order that the normal equilibrium of the circulation might be re-established, thus producing by each method an actual increase in the toxine. The results in ten cases which were under observation for nearly two years, are given. Good results were obtained in

eight cases, of which five were treated by the first method, three by the second. Both methods were alike advantageous. The most noticeable effect in these cases was a marked improvement in the general nutrition with decrease or final subsidence of motor as well as psychic and psycho-sensorial manifestations. In three of these patients, epileptic seizures returned, after six to seven months' suspension of injections, but never with the previous severity. The two unsuccessful cases were subjects of congenito-hereditary epilepsy; and these not only showed no signs of improvement, but exhibited a slow and progressive increase of the epileptic symptoms, with evidence of a grave general intoxication, which condition ceased only with suspension of the injections. In explanation of the contradictory results in the last two cases, the author advances the tentative theory that the cellular elements concerned in epileptic manifestations may react to the stimulus of the injections either physiologically or pathologically, the latter action depending upon some unknown condition of the organism.

FIELDING.

The Journal of Mental Science.

(Vol. 47, October, 1901.)

1. Presidential Address delivered at the Sixtieth Annual Meeting of the Medico-Psychological Association. By OSCAR WOODS.
2. The Working of the Inebriates Act. By JOHN CARSWELL.
3. Phthisis and Insanity in Ireland. By THOMAS DRAPES.
4. The Evolution of the Color Sense. By F. W. E. GREEN.
5. The Superannuation Question: its Effect on Asylum Officials, with Suggestions for Further Legislation on the Matter. By EDWARD O'NEILL.
6. Recent Lunacy Legislation: Retrogression or Progress? By WILLIAM GRAHAM.
7. On the Favorable Results of Transference of Insane Patients from One Asylum to Another. By A. R. URQUHART.
8. Suprarenal Extract in the Treatment of Mental Disease. By W. R. DAWSON.
9. The Care of the Insane in Asylums during the Night. By JOHN KEAY.
10. Physical and Moral Insensibility in the Criminal. By W. NORWOOD EAST.

1. *Presidential Address.*—Takes up the subject of general statistics. The transmission of insanity by inheritance; value of early treatment; difficulties of dealing with premonitory symptoms. He spoke of phthisis infection and the extension of pathological work.

2. *The Working of the Inebriates Act.*—The author shows that as far as the inebriates act is concerned for Scotland that it has accomplished but little service.

3. *Phthisis and Insanity.*—The author here attempts to advance the question whether there is any special connection between insanity and phthisis and comes to the conclusion that as far as the relative mortality from phthisis among young adults is concerned similar figures are to be found outside of asylums as well as inside. As far as elderly patients in asylums are concerned, the results of his inquiry would seem to show that such are more liable to die from phthisis than the population at large. This high relative mortality from

phthisis in asylum populations is due not to any predisposing influence of insanity, but to the conditions of asylum life. He believes there is no such thing as a "phthisis of insanity," but that there is a "phthisis of asylums."

4. *Evolution of Color Sense.*—A short note with no data.

5. *Superannuation Question.*—This paper deals very effectively with one of the constantly recurring questions of executive control incident to asylum life. The views held by the various English Commissions on Lunacy with regard to pension schemes for old employees in asylum service are very fully gone into, and the paper is well worth studying from the economic standpoint.

6. *Recent Lunacy Legislation.*—The author calls attention to the fact that of recent years there is a tendency to cut down expense in the treatment of the insane, and contributes some excellent ideas to the question that is now exercising the minds of many students of the housing of the insane. It has become of recent years popular to advocate the founding of auxiliary institutions in which the chronic and presumably incurable patients may be housed at much less expense, and the acute and presumably more hopeful cases taken better care of. The author is not fond of the theory that there is a line of demarcation between the institution for curable patients and an institution for incurable ones. He criticizes strongly the new Irish County Council schemes and in view of similar proposals finding a place in the councils of this country, the paper is well worth serious study.

7. *Transference of Insane.*—The author brings out that the occasional sending of one patient from one asylum to another is often attended with beneficial results, an idea which has long been recognized, but is here presented in a short note with statistical evidence.

8. *Suprarenal Extract in Mental Disease.*—Histories of seven patients are here recorded in which the suprarenal extract has been employed. The main results obtained as far as insanity is concerned are that suprarenal seems to be of little benefit in cases of melancholia and especially where there is much stupor. The cases which seem to give the best results are those of acute mania of fairly recent origin when uncomplicated by stupor. The work is very superficial and the references very meager, only two references being made to the work in this country, whereas scores of cases have been reported.

9. *The Care of the Insane at Night.*—The author presents a critique of the systems in vogue in Scotland regarding the general supervision of night nursing; it is of interest from an executive point of view.

10. *Physical and Moral Insensibility in the Criminal.*—These observations, carried out at H. M. Convict Prison, Portland, were undertaken to ascertain whether the moral insensibility of the criminal, which is so prominent a psychical characteristic, had any physical parallel. Over one hundred convicts were examined as to the proficiency of their special senses. The standards to which these were compared were obtained from examinations of ten senior medical men of Guy's Hospital (a very insufficient number). The author draws the following rather broad deductions from very meager data: (1) The normal individual has more acute moral and physical sensibility than the criminal; (2) considered as classes, the accidental, occasional, and professional criminal represent three degrees of moral insensibility; (3) considered as classes, the accidental, occasional, and professional criminal represent three degrees of physical insensibility;

(4) the difference between the moral insensibility of the accidental and occasional is greater than that between the occasional and professional; (5) the difference between the physical insensibility of the accidental and occasional is less than that between the occasional and professional; (6) the parallel between the physical and moral insensibility of the three classes, although definite, is not exact; (7) the influence of education on moral or physical insensibility appears to be unimportant; (8) crimes against the person, commonly passion crimes, have least moral and physical insensibility; (9) crimes against distant property, commonly intellect crimes, have more moral than physical insensibility; (10) crimes against near property, sexual crimes, have still more moral than physical insensibility; (11) the influence of age on moral and physical insensibility is negative; (12) sensation is impaired in the criminal,—that is, the number of conscious elements are less than in the normal human adult; that is the number of perceptions possible to the criminal are less, and so the ideas of the criminal as less than in the mind of the normal human adult. A mind lacking in ideas is a mind presenting some enfeeblement; the evidence of this enfeeblement is commonly expressed in the criminal by deficient moral sensibility.

JELLIFFE.

La Nouvelle Iconographie de la Salpêtrière.

May, June, 1901.

1. Cerebral Tumor (Histologic and Pathogenetic Study). ERNEST DUPRE and A. DEVAUX.
2. Dermographism in Epileptics with Intestinal Parasites. M. LANNOIS.
3. Venous Naevi and Hysteria. CH. BINET-SANGLE and LEON VANNIER.
4. Delirium Produced by Mental Introspection. VASCHIDE and VURPAS.
5. The Deformities of the Central Nervous System in Spinal Bifida. SOLOVTOFF.
6. Contribution to the Study of Hypertrichosis as an Anatomical Element of Degeneration. LUCIEN MAYET.
7. A "Possessed" of Reubens. The Transfiguration of the Museum of Nancy. JEAN HEITZ.

1. *Cerebral Tumor.*—The purpose of this detailed study is as follows: To present some considerations upon the histopathology of meningeal endothelioma of the brain and to propose a new hypothesis to explain the physiology of the symptoms due to it. This hypothesis is not to replace those already advanced, but is to take a position among them. Clinical summary: Syndrome of cerebral tumor, headache, vertigo and vomiting, amnesia and dulness, progressive amblyopia and amaurosis from papillary atrophy, then epilepsy and slight local paresis, finally dementia, coma, and death. Autopsy: Voluminous spheroidal tumor, circumscribed, of the size of an orange, situated at the base of the left hemisphere and pressing against the orbital lobe, the insula, and the temporal pole. Histology: Arachnoidean endothelioma, concentric, with vascular spaces and angiomatous structure without calcification. Intense neuroglial sclerosis of the optic nerves. Slight diffuse cortical cellular lesions. In discussing the pathogenesis of this case, the writer first acknowledges that the intracranial circulatory disturbances and the increase of pressure can

account for the headache, vertigo, the papillary disturbances and blindness. These are mechanical agencies. Equally important with these is another factor which is of a toxic character. This is the impregnation of the cerebral substance with the products of malassimilation. The cellular toxines come from the neoplasm and are injected into the venous and lymphatic circulation of the brain. In other words, there is an intoxication of the cerebral substance by the cellular poisons of neoplastic origin. This is the new factor before alluded to. In support of this assumption, analogous symptoms produced by other toxic diseases upon the brain are noted by the author, such as uremia and diabetes. The amblyopia, headache, vertigo, vomiting, the psychical symptoms, mental enfeeblement, epileptic crises, local pareses, and coma, are autotoxic in origin and are found likewise among the symptoms of cerebral origin which are produced by uremia and diabetes. The following conclusions are quoted by the author: (1) Patients with cerebral tumor present, in addition to the depression and to the diminution of intelligence, a peculiar mental state which constitutes the dominant psychopathic condition. This is a state of torpor, of psychical confusion, and of intellectual dulness to which may be added a state of mental decay; (2) meningeal endothelioma can present in addition to the calcareous degeneration, another degenerative process, consisting of an infiltration with a material which stains deeply with eosin, and causes cell retraction. This is a form of hyaline degeneration. It is not limited to meningeal endothelioma, but is found in the pachionian granulations and in the meningeal false membranes. It shows always a predilection for the peri- and paravascular zones; (3) The cortical cell lesions are the following: Cellular atrophy in the convolutions, a result of direct compression. In the convolutions indirectly compressed swelling of the cells with peripheral chromatolysis and eccentric position of the nucleus; (4) in the pathogenesis of cerebral tumors, in addition to the encephalic compression which, without doubt, plays an important rôle, it is necessary to give an important place to the action of the toxic products secreted by the new growth. These act upon the nervous elements. In favor of this hypothesis are certain histopathologic facts (alterations of the cortical cells and of the optic nerves, comparable to toxic infectious diseases), and anatomic facts (the widely extended lymphatic and blood communications of the neoplasm with the brain, which permit an impregnation of the cerebral tissue with the toxines which emanate from the pathologic focus), and finally clinical facts (analogy in clinical symptoms between cerebral tumors and the toxic encephalopathies such as uremia, diabetes and lead poisoning). The encephalic intoxication should thus take its place among the pathological factors (compression, irritation, vascular phenomena) which are invoked to explain the symptoms produced by cerebral tumors.

2. *Dermographism in Epileptics.*—The cutaneous manifestations of epilepsy are not rare, but usually they are only of secondary interest. Most often they result from drugs, and the most usual form is a bromide eruption. Vasomotor disturbances are sometimes met with of the most varied kind. Dermographism is among the most common, and Féré has noted it as among the less important signs of epilepsy. These two cases are noted by the author. (1) Oxyuria since infancy. Urticaria and the dermatographism since the age of thirteen. Beginning of epilepsy at age of twenty-four. (2) Epilepsy beginning at age of eleven. Hereditary epileptic history. Taenia at twenty years. Epileptiform attacks twenty-one years. Dermograph-

ism, very well marked. The article is illustrated by photographs which show the skin lesions very well.

3. *Venous Nevus and Hysteria*.—An account of a venous-nevus and hysteria, in a male, in whom various signs of degeneracy were found, among which were a diminution of the number and an alteration (hyperamœbism) of the neurones. The complexity of the reasoning, by which the author attempts to prove the rôle of amoebism of the neurones in the causation of this case renders an abstract impossible.

4. *Delirium due to Mental Introspection*.—Résumé of case: Woman aged forty-three years; since her youth she has been tormented by doubts and scruples. Exaggerated emotivity, with a tendency to self-analysis. She scrutinizes to the last detail her own states of conscience, questioning herself upon the moral value of her actions and thought thus doubting her sincerity. She accuses herself of imaginary faults. Incapable of understanding the conditions of association and the causes which underlie the perception of different mental acts, which impose themselves against her will upon her conscience, she asks herself if she is the tool of her imagination and her hypothesis, or, if some external force directs her thoughts. At times she is hypnotized, at other times she hypnotizes herself. As a result, ideas of auto-accusation. Probable hallucinations. A careful psychological study of the case, of which the above is a brief description, is given in this paper. The conclusion which the author states is that to live without studying oneself is the normal condition, and that introspection is usually destructive to the best activity of mental well-being.

5. *Deformities of Central Nervous System and Spina Bifida*.—This is a very complete study based upon four cases of spina bifida and illustrated by numerous microphotographs and plates. The carefully detailed account of the author's findings does not permit of a brief abstract, but the following conclusions are a general summary of the author's results: (1) Spina bifida is sometimes accompanied by hydrops of the fourth ventricle, which carries with it an elongation of the fourth ventricle in the direction of the base; (2) hydrops of the fourth ventricle can cause a dislocation of the whole bulb in a direction towards the base; (3) Sometimes the bulb is displaced especially in its posterior part by the hydrops of the fourth ventricle and becomes suspended upon the spinal cord; (4) by the dislocation of the posterior part of the bulb it becomes divided into two halves, an anterior and a posterior half. Each one of these develops separately as far as the region where they become fused together, that is at the crossing of the sensory fibers.

6. *Hypertrichosis as a Sign of Degeneration*.—A description of a case of hypertrichosis in the lumbo-sacral region illustrated by photographs. The author believes that this is a sign of degeneration, and in this case it is one of many other evidences of this condition. Attention is called to the coexistence of hypertrichosis with a false spina bifida, and in this way it may become of considerable diagnostic importance. As to the pathogenesis, or rather the mechanism of the production of dorsal, sacral, or lumbar hypertrichosis, the author has little positive information to give. It is to be noted that this anomaly is only an exaggeration of the normal growth of hair which acquires the most marked development along the vertebral column, and especially at the level of the lumbar and sacral region. A very complete bibliography is included in this article.

SCHWAB.

Jahrbücher f. Psychiatrie u. Neurologie.

Vol. 20, Nos. 2 and 3, 1901.

1. The Cranial Mechanism of Motility. M. PROBST.
2. Delusions of Jealousy in Women. A. SCHULLER.
3. A Contribution to the Knowledge of the Sagittal and Callosal Fibers of the Occipital Lobe. M. PROBST.
4. On Juvenile Tabes, with Remarks on Symptomatic Migraine. H. v. HALBAN.

1. *Cranial Mechanism of Motility.*—Unsuitable for abstracting on account of length and variety of experimental data.

2. *Delusions of Jealousy in Women.*—In this paper an attempt is made to present a clinical picture of delusions of jealousy in women, based upon the study of several typical cases from Krafft-Ebing's ward. The etiological importance of two periods in the sexual life of women is especially emphasized, the climacterium and the puerperium. Marcel was the first to call attention to delusions of jealousy as a clinical entity and to its frequency in chronic alcoholism. As a primary mental affection, it is found most often in men. In women the secondary (symptomatic) form is more common. Uterine affections, menstruation, hysteria, and climacterium are favorable factors for its development. Delusions of jealousy were found in the following cases: Paranoia persecutoria. The delusion of marital infidelity dominated the clinical picture of delusions of persecution; climacteric paranoia in the form of delusions of jealousy; lactation psychosis; chronic alcoholism; dementia paralytica; hysteria, convulsive attacks, anxiety, hallucinations, visionary happenings, voices which announced the husband's infidelity, and homicidal and suicidal impulses; menstrual psychosis and hypochondria; climacteric neurosis with imperative ideas. The frequency of delusions of jealousy in women is shown by the fact that it occurred twenty-seven times in 1975 cases observed in this clinic. They occurred nine times in paranoia, six in acute psychoses, five in chronic alcoholism, four in degenerates, and three in dementia paralytica. As in the six acute cases of lactation psychoses, and as in four of the paranoia cases, climacteric psychoses were present, these two episodes must be recognized as giving the impulse towards the development of the delusions in question. In cases with an indefinite etiology, the relation of the menopause and lactation should always be considered. These cases have always an important medico-legal relation in questions of divorce either based upon the supposed infidelity of the husband or the wife, or upon homicidal attempts which the presence of these delusions of jealousy frequently causes.

3. *Sagittal and Callosal Fibers in the Occipital Lobe.*—A study of the relation of the fibers of the occipital lobe based upon a case of softening chiefly of its lateral surface. Unsuitable for abstract on account of the involved anatomical descriptions.

4. *Juvenile Tabes.*—Von Leyden, Marie, and others have denied that tabes dorsalis is ever found in children. Halban in this paper brings forward convincing proofs that these denials are not justified. Several cases of juvenile tabes, studied in the clinic of Krafft-Ebing, form the basis of this paper. The importance of syphilis as an etiological factor in tabes is brought out strongly by the study of juvenile forms. In the cases where syphilis is acquired at an unusually late or early age the appearance of tabetic symptoms shortly after-

wards cannot be explained by coincidence. The first case of juvenile tabes in literature was described by Henoch in 1876. From that time on numerous cases have appeared, so that juvenile tabes cannot any longer be considered as a curiosity. The author describes the following cases, of which a clinical summary is here given: Case I. Girl twenty years old, hereditary lues; mother died of progressive paralysis; father has Argyll-Robertson pupil; beginning of the disease in the sixteenth year. Optic nerve atrophy, Argyll-Robertson pupil, Westphal symptom, disturbance of sensibility on thorax, hypotonia, slight disturbance of muscular sense, lancinating pains, girdle sensation. Case II. Man, twenty-three years old; syphilis of the parents. Since the ninth year rheumatic pains; from the twentieth year disturbance in gait, Argyll-Robertson pupil, radial paralysis, disturbance of sensation on the thorax and the right plantar surface, slight Romberg. Case III. Girl, twenty-one years old; father probably has progressive paralysis. Since the thirteenth year anisokoria. Since the fifteenth year ophthalmic migraine; Argyll-Robertson pupil, sensory disturbances on trunk, Westphal symptom. The importance of syphilis in the etiology of tabes and progressive paralysis is becoming more and more recognized in spite of the objections of Virchow, Leyden, and others. It no longer satisfies the investigator to ascertain in what per cent. of cases of tabes syphilis is found, but he wishes to show that syphilis is a *conditio sine qua non*. This opinion is supported by Moebius and in this respect he goes further than Erb, who was the first in Germany to announce that syphilis was of etiological importance. In regard to the neuropathic disposition, the author believes that it is frequently impossible of proof. If this disposition is present, tabes dorsalis cannot develop unless a previous infection by syphilis has existed or unless hereditary syphilis is present.

SCHWAB.

Deutsche Zeitschrift für Nervenheilkunde.

(1901, xix Bd., 2 u. 4 Hft.)

1. The Pathological Changes Produced by Lumbar Puncture. OS-SIPOW.
2. Disturbance of Temperature Sense in Syringomyelia. ROSENFELD.
3. The Origin of the Cervical Sympathetic in the Spinal Cord. LAPINSKY and CASSIRER.
4. Concerning Ataxia. LENAZ.
5. Friedreich's Disease. BIRO.
6. Disturbances of Achilles Tendon, Reflex in Tabes Dorsalis and Sciatica. BIRO.
7. Physiology and Pathology of Tendon Phenomena in the Upper Extremities. MOHR.
8. Spinal Cord Changes in Compression by a Tumor at the Level of the Uppermost Segments. CRIESE.
9. Acute Mercurial Polyneuritis. SPITZER.
10. Diagnosis of Acute Focal Lesions in the Oblongata and Pores. WALLENBERG.
11. Spinal Muscular Atrophy due to Lead-poisoning, Occurring in a Case of Infantile Poliomyelitis. VON SARBO.
12. Extensive Disease of the Vessels and Meninges of the Brain and Cord in the Early Stage of Syphilis. FINKELBURG.
13. Paralysis Agitans Combined with Myxedema. Thoughts on Pathogenesis of Paralysis Agitans. LUNDBORG.

1. *The Pathological Changes Produced by Lumbar Puncture.* Lumbar puncture has, in several instances, proved fatal. Nevertheless, there seems to be prevalent a general feeling that it is a perfectly harmless procedure which may be employed even when the indications are not clear. Ossipow has made some experiments upon animals to determine the possible harmless effects upon the nervous system. The plan of the experiments was as follows: (1) A single puncture; (2) a series of punctures with short pauses between them (1 and two days); (3) a series of punctures with intervals of a week; (4) lumbar puncture with aspiration of the cerebrospinal fluid; (5) a control experiment. The animals (dogs were employed) were killed by division of the carotid artery under ether, and the brain and cord were immediately removed, fixed and prepared for study. It was proved that evacuation of the cerebrospinal fluid by means of puncture produced a prolonged hyperemia of the vessels of the meninges and of the brain and cord. After repeated punctures, numerous punctiform hemorrhages, especially in the grey matter of the lumbar, upper dorsal, and lower cervical segments of the spinal cord, and more rarely in the brain, are found. After aspiration, hemorrhages into the central canal are very frequent. After repeated punctures, the nerve cells show distinct changes. Although the experiments upon animals may not be directly applicable to man, they nevertheless suggest to the author several therapeutic considerations. In the first place, when large quantities of fluid are to be removed, the possibility of cerebral hemorrhage should be kept in mind. The use of the procedure should be confined to cases in which there are distinct signs of pressure which threaten the life of the patient. In sclerosis of the arteries and in aneurysm of the cerebral vessels lumbar puncture is contraindicated. It is absolutely contraindicated, also, in acute and chronic disease of the central nervous system in which there are no distinct symptoms of increased pressure on the part of the cerebrospinal fluid. The danger of the diagnostic use of lumbar puncture is much less if only small quantities of the fluid are removed. Lumbar puncture in apoplectic hemorrhage, for the purpose of determining whether the blood has entered the ventricles, is of doubtful value, as a bloody discoloration of the fluid may depend upon other causes; for instance, the injury of a vessel by the needle. Moreover, the removal of the fluid may bring about increase of the hemorrhage. Lumbar puncture with aspiration of the fluid should be entirely abandoned.

2. *Disturbance of Temperature Sense in Syringomyelia.* Rosenfeld's patient had syringomyelia of the cervical type. A peculiar feature in the case was that while the man could not distinguish between the extremely cold and hot test tubes, he could tell when he was touched with a cold or a warm hand. This anomaly might be explained upon the ground that there was in the patient a peculiar modification of theremoesthesia, by reason of which extreme temperatures were not distinguished, while temperatures approaching that of the body were properly discerned; or upon the theory that there was a local summation of temperature sense impressions. To determine whether the latter was the correct explanation, the author used coils of lead tubing, so as to cover a large surface, and passed water of different temperatures through them. When thus examined, the patient could distinguish temperature differences better than when test tubes were used. In the case of the hand, however, not alone is there a summation of impulses, but cognizance must also be taken of the fact that patients with syringomy-

elia have not lost the memory for heat and cold. The touch of the hand produced a complicated sensation: One of touch and pressure, one of more or less moisture, and one of temperature. If a patient is touched with a hand having a different temperature from his own skin surface, the sensations still preserved may suffice to awaken a recollection in the brain sufficient to identify the hand as warm or cold. The summation of impulses is an auxiliary factor.

3. *The Origin of the Cervical Sympathetic in the Spinal Cord.*—A number of experiments have been made to determine the origin of the sympathetic nerves, the most important being those of Huet and of Onuf and Collins. The former extirpated the superior cervical ganglion and studied the cervical spinal cord by the Marchi method. No special changes were found. Nissl's stain revealed degenerative changes in the anterior horn on the operated side. Onuf and Collins, after extirpating either the stellate or the semilunar ganglion from cats and studying the nervous system, concluded that the afferent fibers of the sympathetic spring, not from the spinal ganglia, but from the ganglia and plexuses of the sympathetic, and terminate in the cells of Clarke's column and in the intermediate zone. Lapinsky and Cassir removed the superior cervical ganglion from 5 animals, and the inferior from 2. The animals were killed after 2 or 3 weeks, and the cord was studied by the Marchi and the Nissl methods. The results were negative. Hence the authors conclude that the question of the origin of the sympathetic in the spinal cord is not as yet solved.

4. *Concerning Ataxia.* There are two theories of ataxia: one that the condition is due to a disturbance of the function of the central organs or of the centrifugal tracts; the other, that it depends upon disturbances of sensation. As against the latter theory, there are a number of cases on record of anesthesia without ataxia, and of ataxia without anesthesia. Sensation is necessary for the control of movements, but not for their inauguration. The author's general conclusions are that in the execution of voluntary movements 2 systems are concerned: first, the cerebrum (cortical system), with the pyramidal tracts, which convey the voluntary impulses to the muscles, and the sensory tracts, which inform us as to the position of our limbs; second, the cerebellar system, which influences the unconscious, but indispensable, synergic impulses. Diseases of the cerebral system produce, in general, paralysis; those of the cerebellar system, asthenia and ataxia.

5. *Friedreich's Ataxia.*—A report of 5 cases of Friedreich's ataxia, with a review of the literature, together with a lengthy but valuable table of differential diagnosis.

6. *Disturbances of the Achilles Tendon-reflex in Tabes Dorsalis and Sciatica.*—Biro, in a study of the Achilles tendon-reflex, finds that in tabes dorsalis it may, in the beginning, be absent on one side, and, later, disappear on both sides. Its absence in healthy persons is very doubtful. Biro does not think it probable that in health a tendon-reflex is ever absent from birth, in any one extremity. In many cases of disease of the sciatic nerve the Achilles tendon-reflex is absent on the affected side. In no case was there such a disturbance in a healthy extremity. In several instances the reflex was diminished in the beginning, disappeared later, gradually returned during convalescence, and was entirely restored after complete cure. The reflex is dependent upon the sciatic nerve. The disturbance of the reflex

in so-called sciatica is strongly in favor of the view that this affection is not a neuralgia, but depends upon a distinct anatomic lesion.

7. *The Physiology and Pathology of the Tendon-reflexes of the Upper Extremities.*—Mohr's conclusions are as follows: (1) The tendon-reflexes in the upper extremities are inconstant; the triceps reflex is absent in 33 per cent. of healthy persons; the supinator reflex in 13 per cent. (2) The absence of these reflexes in diseases of the nervous system is not directly applicable in diagnosis. (3) In tabes dorsalis these reflexes are absent in about the same proportion as in health. (4) Only the presence of the reflexes in normal or increased intensity can be of diagnostic value. (5) In the presence of exaggerated reflexes, the diagnosis between organic disease and functional disturbance can be made by a study of the muscle tenus, which is increased in the former, and manifests itself, in its earlier stages, during quick passive supination and quick extension of the flexed forearm.

8. *Spinal Changes following Compression by a Tumor at the Level of the Uppermost Segment of the Cord.*—The tumor was of (the size of a walnut, and had grown between the dura and the bone, occluding the foramen magnum on the right side, and leaving only a small space for the oblongata on the left. The lowest part of the oblongata and the cervical segments down to the lower border of the third were compressed. The cord was reduced to a thickness of from 3 to 4 mm, at the point of the greatest compression. A curious feature was that the interior portions of the cord suffered more than the periphery; this seems to be the rule in compression of the cord, although there is no satisfactory explanation for it. The interior columns were generally preserved. All gradations between slight degeneration of the nerve-fibers and complete disappearance of all nerve elements could be traced. Actual softening was not present, and the consistency of the affected parts did not differ materially from that of other portions of the cord: microscopically, the signs of edema and swelling were less marked than those of secondary sclerosis. The presence of round cells in large numbers and of newly-formed blood vessels indicated the co-existence of inflammatory processes. Secondary degeneration was present in the posterior columns, but the comma tract could not be traced for more than 3 segments (the Marchi method was employed). It is still undecided whether all the fibers of this tract are of the same nature and have the same origin. Schultze assumes that they are composed of descending fibers of the posterior roots, while Tooth ascribes to them an endogenous origin. Ziehen believes that both views may be correct. In the present author's case, the degeneration was observed on but one side, although the posterior horns of both sides were involved. If it is assumed that the fibers come from the posterior roots, the unilateral degeneration can be more easily explained, as the left posterior portion of the cord was more degenerated than the right. The oval field of Flechsig was not degenerated.

9. *Acute Mercurial Polyneuritis.*—A syphilitic patient of 28, suffering from a recent maculopapular syphiloderm, after receiving twenty-two inunctions of gray ointment, developed pain, tenderness and ataxia of the lower limbs. The pupils, bladder and rectum were normal. The tendon-reflexes were exaggerated. Romberg's symptom was present; mentality was good. Spitzer considers the case one of neuritis of the motor nerves, and bases the view that it was due to the mercury and not to the syphilis

upon the fact that when mercurial treatment was suspended the neuritis promptly disappeared, although the syphilitic manifestations of the skin continued and increased. During the period of the neuritis, the urine contained mercury. Interesting, of course, is the exaggeration of the patellar reflex and the ankle clonus. The author does not think that this feature is necessarily indicative of spinal involvement, and believes that it can be present with a peripheral neuritis.

10. *A Clinical Contribution to the Diagnosis of Acute Focal Lesions in the Oblongata and the Pons.*—The cases here reported illustrate a diagnostic acumen on the part of the author that is truly astounding. There were no autopsies in any of the cases, but the reasoning is so logical that the diagnosis may be accepted. Case I is that of a woman of 55, with marked arteriosclerosis. After an apoplectiform attack without loss of consciousness, there appeared difficulty in swallowing, vertigo, and sensory disturbances in the right half of the face and in the left leg. The subjective symptoms were (a) vertigo, with a tendency to fall, first to the right, and later to the left side; (b) a sensation of cold on the right temple; (c) disturbance of deglutition, which later disappeared. The objective symptoms were: (a) disturbance of sensation in the distribution of the two upper roots of the right trigeminus; (b) sensory disturbances, chiefly of cold and pain, on the left side of the body, from the scapula and mamma downward, varying in intensity, and occasionally extending to the upper extremity; (c) vasomotor disturbances on the right half of the nose; (d) diminution of the right corneal reflex; (e) constant paralysis of the right vocal cord; (f) ataxia of the right extremities; (g) diminution of the right knee-jerk, varying in intensity; finally exaggeration. The diagnosis of the author was thrombosis of the right posterior inferior cerebellar artery. Case II was a man of 61, who, after very severe exertion, experienced weakness and tingling in the left foot followed by vertigo, paralysis of deglutition, cough, dysarthria, disturbance of sensation on the right side of the face and left side of the body (exclusive of the face), a tendency to fall to the right and paresis of the left leg. The diagnosis was thrombosis of the right vertebral artery, beginning at the point of origin of the right posterior inferior cerebellar artery. Case III, a man of 48, with a history of syphilis and old otitis media, was seized, without disturbance of consciousness, with vertigo and vomiting. The persisting symptoms were vertigo and vomiting, a tendency to fall to the left, ataxia of the left limbs, absence of the patellar, cremasteric and abdominal reflexes, paresis of conjugate deviation to the left—particularly of the left abducens—marked horizontal nystagmus when looking to the left, and rotary nystagmus when looking to the right; deafness in the left ear, with shortening of bone conduction, and a negative Weber test. The lesion was placed in the left restiform body, at the entrance of the auditory nerve. Case IV, a man of 70, with marked arteriosclerosis, after an apoplectiform attack with paresthesia of the nose, tinnitus in the right ear, and unconsciousness; had the following symptoms: Vertigo, a right-sided corneal scar in consequence of keratitis, sensory disturbance of both trigeminal nerves, paresis of the muscles of mastication on the right side, total paralysis of the right abducens and of the right facial, partial labyrinthine deafness on the right side, hyperesthesia for pain and less for temperature sense on the left side of the chest, neck and shoulder; and slight exaggeration of the tendon reflexes of the left leg and of the left musculospiral reflex. The diagnosis was hemorrhage from the central branch of the artery going to the right facial

nucleus in the right half of the pons, between the sensory fifth nucleus, the trapezium, and the root of the abducens. Under each case the author gives able arguments justifying the diagnosis.

11. *Spinal Muscular Atrophy following Lead Poisoning in a Case of Infantile Poliomyelitis.*—The muscular atrophy began in the patient, who was first a lead moulder and then a compositor, at the age of 20, and affected all parts except the muscles of the face, neck, and lower left leg. The atrophy commenced in the right leg, which from childhood on was shorter than the left, the result of poliomyelitis. From the age of 25, the patient also suffered from dermatitis herpetiformis.

12. *A Case of Extensive Disease of the Vessels and Meninges of the Brain and Cord in the Early Stages of Syphilis.*—The patient was a man of 43, who had a tuberculous history. Six months after infection he sustained, without loss of consciousness, a left-sided hemiplegia, which disappeared in 3 weeks. Two months later there was a severe headache, which yielded to specific treatment. Six months after the first appearance of cerebral phenomena, death occurred in an attack of right-sided hemiplegia, with symptoms of vagus paralysis. The autopsy showed a fibrinous pleurisy and lobular pneumonia; and in the brain extensive changes in the arteries and veins, in the form of periarteritic and endoarteritic, meningitic processes at the base of the brain in the neighborhood of the right frontal convolution and in the cord. Perineuritic and endoneuritic changes of the basal nerves and of the spinal roots, and softening in the lenticular nucleus and in the pons.

13. *A Case of Paralysis Agitans combined with Symptoms of Myxedema.*—Lundborg believes that myoclonus familiaris and paralysis agitans are both due to disease of the thyroid gland, and calls attention to the analogy which others have also observed, between paralysis agitans and exophthalmic goiter. He reports the case of a woman of 54, who in addition to paralysis agitans, had a number of the symptoms of myxedema. At the autopsy the thyroid gland was found small, with no middle lobe. Microscopic examination of the right lobe showed chronic interstitial changes, as well as a degeneration of the alveoli. The left lobe was the seat of cystic change. The author assumes that a thyroid so altered furnishes a pathologic secretion which is capable of producing a profound alteration in the nervous system.

RIESMAN.

MISCELLANY.

THE TREATMENT OF MORPHINOMANIA. O. Jennings (Lancet, Aug. 10, 1901).

Dr. Jennings insists that the mere suppression of the habit of taking morphine such as can be assured when a patient is under restraint is no proper cure, and that unless the craving for the drug is removed the habit will of a certainty return when the patient regains his liberty and when the conditions which have led to the taking of the morphia again arise. In regard to this craving, one must differentiate, when it will be found that it occurs in two forms. Hypodermic injections of morphine seem to give energy and "go," and it is for this reason that the syringe is resorted to on the slightest pretext. It is, says Dr. Jennings, the exact equivalent of brandy nipping. Thus one form of craving is a desire for the purely stimu-

lating effect of the syringe. This can with comparative ease be got over by the exercise of some self-control, or by a moderate amount of compulsion, so long as morphine in some other form is substituted. But the craving for the morphine itself is another matter. The morphine *habitué* becomes so dependent upon the drug that, quite independently of the immediate reviving effect which results from the use of the syringe, he depends, not merely for happiness, but for bodily comfort, upon the regular ingestion of a certain daily dose of morphine, the lack of which is the cause of the miserable wretchedness that accompanies the sudden suppression of the opium habit. One must bear in mind that morphine is a stimulant, and especially a cardiac stimulant, and that not a few of the depressing effects of the sudden cessation of its use are due to the enfeebled action of the circulatory apparatus which immediately results. Hence the necessity of administering some form of cardiac tonic or stimulant while the morphine is being reduced. Again, it will be observed that the morphine *habitué* suffers greatly from "hyperacidity of the stomach and organism generally." No doubt much of the sinking and distress which these patient complain of is primarily due to this sour condition of stomach, and although the morphinomaniac will fly to morphine for the mitigation of this as of every trouble, still there are other ways of relieving it, such as by the administration of alkaline stomachics. Hence the great utility of bicarbonate of soda in the treatment of the morphine habit. In fact, in treating this condition it is not sufficient merely to cut off the drug. One must do all in one's power to remove every cause of discomfort, and to protect from every cause of distress, knowing as we do that in these patients the craving which is the source of mischief is not a mere vicious desire for an unnatural stimulation, but is often a very natural longing to take what experience has shown to be the shortest way of getting rid of distressing feelings of many kinds.

In the treatment then of a case of morphinomania the first thing to do, according to the author, is to simplify the case by stopping the use of all other stimulants—alcohol, cocaine, or whatever they may be—which the patient may be taking; and it is comparatively easy to do this, for the morphine is what the patient craves for, and he will give up everything for its sake. Having then insured that we have but one vice to deal with, the next thing is to get rid of the use of the syringe by substituting some less harmful mode of administration; and this again ought not to be inordinately difficult; the patient can be persuaded to give up his temporary joy if we will allow him the means of escaping the continual misery which deprivation, or even material diminution of his daily dose of morphine produces. Dr. Jennings strongly advises that the morphine given for this purpose should be administered by the rectum. Of course the amount given in this way will have to be larger, perhaps twice as large as that taken hypodermically. But that does not matter. The patient is weaned from the constant desire for the immediately stimulating effect of the syringe. When this is accomplished, we must gradually reduce the dose; as quickly as possible, but at the same time as slowly as is necessary to effect a cure without producing distress; and with the object of warding off this distress, we must administer cardiac tonics such as sparteine or digitalis. In some cases nitro-glycerine is useful. Then, in view of the almost constant presence of hyperacidity, bicarbonate of soda should be administered; and lastly one must remember that the hot-air bath—the Turkish bath followed by massage and the cold douche—is one of the best of sedatives, and

perhaps also tends to eliminate some of the toxic material which tends to accumulate in the blood of these "acid" patients. At any rate the use of the hot-air bath is of great service not only during the process of reducing the morphine but also afterwards. It is very important that as the morphine is reduced the patient should be kept to a strictly moderate and as a general rule a non-alcoholic régime. The tendency is for these patients, as they recover, to eat too much, which again brings on hyperacidity, and this in turn leads to a renewal of the craving. To prevent this a simple life with a fair amount of exercise and the regular use of Turkish baths is to be advised. The great thing is to get rid not merely of the morphine but of the craving for it; and this cannot always be done by strength of will, by good resolutions, or even by subjection to restraint, unless attention be paid to the conditions which lead to the desire for the drug, and also to the discomforts which follow the cessation of its use.

JELLIFFE.

DIE JUVENILE FORM DER PROGRESSIVEN PARALYSE (Juvenile Form of Progressive Paralysis). J. A. Hirschl (Wiener klin. Wochenschrift, No. 21, 1901, p. 515).

During the last ten years twenty cases of juvenile paretic dementia have been observed in Krafft-Ebing's clinic. The age of twenty years is taken as the dividing line between the paresis of youth and that of adult life. Hirschl, who reports these cases, has found that in juvenile paresis hereditary syphilis and neuropathic taint are very common. In seventeen of the twenty cases hereditary syphilis was definitely shown, and in another case it was probable. Nine cases occurred in mentally deficient children. Twelve were in males and eight in females. The disease in these twenty cases began between the ages of eight and twenty years. Most of the patients had not reached puberty; as nine of the males and five of the females were sexually undeveloped. The average duration of the disease was three years and three-quarters, although two cases lasted seven years.

SPILLER.

REPORT OF A CASE OF CEREBELLAR TUMOR: DEATH; AUTOPSY. D. A. K. Steele (The Chicago Clinic, vol. xiii, No. 1).

The patient was a boy of thirteen. At the time of birth he was almost asphyxiated, being resuscitated after considerable effort. No instruments were used. At the age of four years he had malarial fever. When six years old he manifested abnormal nervousness. This passed off in about six months. When about eight or nine years old he suffered from severe epistaxis, and in his eleventh year he had what were called bilious attacks. The contents of the stomach were ejected with great violence. It was supposed that he was suffering from toxemia due to bile absorption, which caused the headaches, jaundice, nausea and vomiting. The mother noticed a slight unsteadiness in the gait, but this was not marked until he was about twelve years old. The eyes were slightly affected, so that he held his book to the left in reading, and noticed spots before his eyes; also complained of diplopia. He was confined to his bed, had very little pain, lay in a semi-comatose condition, had little or no vomiting. When he began to recover he remarked that all the days seemed dark. The sight was tested and it found that he could not count the fingers. This was after he had been ill for three or four weeks, and there was considerable bile in the blood and urine. His gait began to be more unsteady, the unsteadiness gradually in-

creasing until four weeks before he was brought under observation, when he was perfectly helpless. He had severe vomiting, preceded by nausea and markedly of the projectile variety, the matter ejected being merely mucus without bile. Often in the night or during the morning he complained of most fearful headaches, which were frequently accompanied by vomiting. The headaches were referred to the forehead, but seemed to radiate more or less over the whole head.

When he entered the hospital the gait was very unsteady, tottering and irregular, ataxic in character. His head had always been large. When examined he seemed fairly well nourished, had exaggerated ankle clonus, more marked in the left foot than in the right; coöordination greatly impaired. Terrific headaches following vomiting spells; totally blind; pupils dilated; hearing nearly normal; smell impaired, but various odors recognized; taste normal; touch somewhat blunted. No appreciable nerve impairment in either auditory nerve. Double optic atrophy. Secondary congestion of veins had lessened, and they were smaller than normal while arteries were threadlike.

An X-ray photograph did not give anything definite. As the symptoms of the boy grew worse, there were involuntary evacuations from the bladder and bowel, and an increase in the severity of the headaches. Trephining was done over the right frontal lobe to relieve the intracranial pressure. As it was not considered justifiable to remove the cerebellar tumor, an opening was made about half an inch to the right of the median line, well in advance of the motor area. After exposing the brain, a needle was passed downward and backward through the brain tissue, and at the depth of about an inch it entered a free cavity. When in the free cavity fluid escaped, and it seemed that the needle had entered a cyst. The fluid was clear, saline, normal, cerebrospinal fluid. After the withdrawal of two or three ounces, the needle was taken out and brain was incised. It was found that the cyst was really a greatly distended lateral ventricle due to internal hydrocephalus. After the escape of eight or ten ounces of this fluid, the ventricle was packed with strips of iodoform gauze. The boy did well for thirty-six hours, when high temperature developed and he died.

At autopsy there was found to be a cerebellar tumor situate in the left hemisphere of the cerebellum close to the median line and pressing upon the right and middle lobes of the cerebellum. Microscopical examination showed the typical structure of a glioma, quite vascular in character.

JELLIFFE.

ZUR KENTNISS DER LEUKÄMISCHEN ERKRANKUNG DES CENTRALNERVENSYSTEMS (Leucemic Affection of the Central Nervous System). R. Spitz (Deutsche Zeitschrift für Nervenheilkunde, 1901, xix, 5 and 6, s. 467).

The author reviews the literature of nervous affections in leucemia and gives the anatomical findings in a case examined by him. The changes in the nervous system are somewhat different in acute and in chronic leucemia. In the former consisting mainly of hemorrhages and cellular aggregations (lymphomata), and in the latter of sclerotic or softened foci. The case examined by him was an acute one, that of a woman of forty-seven years, dying after an illness of about five weeks. The macroscopic changes were practically negative, but upon microscopical examination extensive lesions were revealed. These consisted in the main in multiple foci and changes in

the very fine vessels. The foci were but few in the cervical region (only this portion of the cord was severed for examination), more numerous in the pons, and again fewer toward the cortex. They were found mainly in the white matter, to a less extent in the gray matter, and varied much in size, all being too small to be plain to the naked eye. These foci consisted of aggregations of round cells mainly mononuclear, polynuclear cells being rare and eosinophiles not found. Many of the larger foci showed central necrosis and were not unlike cheesy tubercles in appearance. The nerve sheaths were not unaffected, but showed here and there degeneration, both by Marchi and by other methods. The capillaries were distended with leucocytes and the advention showed round celled infiltration. The nerve symptoms observed intra vitram were insignificant compared to the extent of the changes. This the author thinks is due to the fact that they were to some extent masked by the severe general symptoms of the disease.

He next considers briefly observations recorded by a number of other authors and compares them with his own case. Bulbar symptoms he finds most common. Chronic leucemia seems to have a special tendency to attack, the midbrain and afterbrain and the nerves arising from them, the spinal cord and its nerves being less frequently affected. The changes in acute and those in chronic leucemia differ mainly in degree, the nerve degeneration and sclerotic alterations being wanting in the former. A copious list of references is given at the end of the article.

ALLEN.

BERI-BERI. Francis Clark (British Medical Journal, 1900, May 12, p. 1,152).

The following is a résumé of the history of an outbreak of beri-beri at the Berlin Foundling House, West Point, described by the author. It is stated that the Blind Home, a one-story building, which maintains about sixteen children, and is now closed, has had cases of beri-beri among the inmates since July of last year, the first case to occur being said to have been an infant who was admitted suffering from the disease. From the records, I find, however, that only one death has occurred at the Blind Home during this period—namely, a female child four years old, whose death was registered as due to beri-beri. The children from the Blind Home attended divine worship at the Berlin Foundling House on Sundays, and a European nurse employed at the latter visited the Blind Home daily, and the authorities of the Foundling House are of the opinion that the infection must have been introduced from the Blind Home in some manner or other. The first two children to be attacked were two who were being (surgically) dressed by the above-mentioned nurse, one for an affection of the eyes, and the other for some skin affection, although I cannot gather that either of them had open wounds. Within two days, however, of these two children showing symptoms of the disease, no fewer than fifty to sixty others were attacked. Up to December 7 the House contained 102 Chinese children and girls up to 16 or 17 years of age, and on that date sixty-nine school children, all of whom were said to be suffering from beri-beri, were sent to the neighboring Portuguese colony of Macao with six big girls (who were free from the disease) to assist in looking after them, thus leaving twenty-seven healthy children in the House. These latter have remained healthy, although no change has been made in the dietary or source of food supply. Two of the children sent to Macao died shortly after arrival there, but the remainder are

reported to be improving in health. The children who were attacked were all between the ages of four and seven years, and all of them slept in a series of adjacent ground-floor rooms. These rooms are thoroughly well lit and ventilated and have close-boarded floors, which are painted but otherwise bare. Some children who slept in the ground-floor rooms in another part of the building were not attacked, nor were any of the girls who slept upstairs. No European cases have occurred. The children's dietary appears to be a most generous one, comprising rice, eggs, fish (fresh and salt on alternate days), meat (beef or pork) at every evening meal and thrice a week with the morning meal. The special points about the outbreak seem to be the unusually early age of all the patients (from four to seven years), the absence of overcrowding, and the abundant lighting and ventilation of the premises, the liberal dietary, the fact that all those attacked slept on the ground floor, and the fact that after the removal of the sick the remaining twenty-seven children have remained free from the disease, although no apparent change has been made in the dietary.

If Manson's theory is adopted it must be assumed that the infection was conveyed from the Blind Home to the Berlin Foundling House either in the clothing or in the earth adhering to the boots of the children or of the nurse who went from one establishment to the other, that it developed rapidly, and that the children sleeping in certain of the ground-floor rooms were rapidly poisoned by the toxin generated by the infective germ. The fact that the two children who required surgical dressings were the first to develop the disease suggests rather that they were thus more susceptible to the disease than that they communicated it to the others, for the interval between their attack and the outbreak among the rest of the children did not exceed two days at the most, and the author is inclined to think, therefore, that all the children derived infection from the same source.

JELLIFFE.

Book Reviews

STUDII ANATOMICI E Sperimentali SULLA FISIOPATOLOGIA DELLA GIANDOLA PITUITARIA (Hypophysis cerebri). Par Dott. Arnaldo Caselli, Stefano Calderini e Figlio. Reggio nell' Emilia.

This is an interesting and complete monograph on the pituitary, the result of several years original work. The anatomy, ontogenesis, philogenesis and physiology are discussed in three opening chapters. The functional relationship of the hypophysis with other organs is taken up in a fourth, the morphological alterations occurring in man, hypophysis-therapy and hypophy-sectomy in man are the concluding chapters.

A number of interesting facts may be gleaned from this work. Speaking of the development of the hypophysis the author says that it follows the development of the rest of the encephalon, measuring the most in those with the largest brain and the least in those of small brain. The anterior lobe, with its epithelial-like structure presents many analogies with the structure of the thyroid. In the posterior lobe there are no well-marked nervous elements, those which are there found are most elementary in structure or have lost their nervous character.

Complete abolition of the function of the hypophysis produces in the first place a slowing of the respiration and an acceleration of the pulse. There is some slight diminution of the psychical functions, and a disturbance of movement characterized by over extension of the muscles and a spastic tonic-clonic contraction of the limbs without sensation, convulsions, progressive cachexia, coma and death. The cachexia is of the type of an intoxication and is probably due, as is also the diminution in psychical function, to the action in the cerebellum and spinal cord. In many respects the symptoms following extirpation of the hypophysis are similar to those of diabetes.

In animals in which partial development of the pituitary has taken place there is also a retarded development of the entire animal organism.

Many lesions and anomalies of the hypophysis may be found in man without any appreciable alteration in the general health and acromegaly is probably due to a modification of the function of the gland, often associated with its hypertrophy, although not necessarily so. Atrophy of the gland is a nearly constant accompaniment of cretinism.

The author concludes that this organ is a necessary one to the human economy and that it has a specific internal secretion, a modification of which brings about grave alterations in metabolism.

JELLIFFE.

TRAITÉ DE THERAPEUTIQUE DES MALADIES MENTALES ET NERVEUSES.
Hygiène et prophylaxie. Par Paul Garnier, Médecin en Chef de l'infermerie spéciale du dépôt, et Paul Cololian, Ancien interne des asiles de la seine. 8vo., 496 pages, 7 francs. J. B. Baillière et fils, Paris.

There are numerous didactic treatises on nervous and mental dis-

eases but for the most part, excepting the memorable work of Collins, they devote themselves to etiology, pathology, and pass treatment by with scanty attention. It is a good sign of the times that special work on treatment should appear.

The plan of the work is very simple. After a short and yet detailed account of the historical aspects of neuroses and psychoses, a complete analysis of the construction of a modern institution for the treatment of the insane is offered and a free discussion is made of the principles of non restraint, and the open door systems.

An interesting discussion presents the necessary variations which should exist in the type of building to accommodate three types of the insane,—the ordinary insane, the criminal insane and the prison. Institutions for the treatment of alcoholics, epileptics, hysterical individuals, idiots and for degenerates are described and their needs considered. Apart from the features of the habitat for patients, rules for general diet and regimen are carefully and fully considered.

From the more strictly pharmacotherapy point of view there are exhaustive chapters on sedatives, hypnotics, narcotics, nervines, and full discussions of the various physical agencies of hydrotherapy, actinotherapy, massage and electrotherapy.

Following the general discussion of the various remedies, special chapters then consider *in extenso* the treatment of the different neuroses and psychoses. A final chapter is offered on etiology and prophylaxis. Considered from all points of view the work is an excellent one and is worthy of special commendation. JELLIFFE.

ATLAS AND EPITOME OF THE NERVOUS SYSTEM AND ITS DISEASES. By Professor Dr. Chr. Jakob, of Erlangen. From the Second Revised German Edition. Edited by Edward D. Fisher, M.D., Professor of Diseases of the Nervous System, University and Bellevue Medical College, New York. W. B. Saunders & Co., Philadelphia and London, 1901. Cloth, \$3.50 net.

In reviewing, in a former issue, this excellent manual, we pointed out its many points of practical utility. The present edition varies little from that formerly presented by another publisher, save that its style as a reflection of the publisher's art shows a distinct improvement. Better paper and more careful typographical supervision make it a more pleasing product. As a comprehensive manual of the anatomy, normal and pathological, we know of no work which gives as much material in so condensed and compact a form. It is a worthy representation of the Saundier's Hand Atlases. S.

News

ANNOUNCEMENT.

The JOURNAL OF NERVOUS AND MENTAL DISEASE for 1902 is to be conducted on much the same lines as for the past four or five years. It still remains the only monthly journal in its specialty in the English language, and during its twenty-nine years of development has enjoyed the respect and support of the practitioners of this country.

For the past ten years the JOURNAL has been most ably conducted by the late Dr. Charles Henry Brown. Through his efforts the periodical has taken its place in the front ranks of special journals and it is due to Dr. Brown's business capacity that American Neurology and Psychiatry has had such a successful and worthy organ.

Following Dr. Brown's death, the Board of Editors have expressed the desire that the JOURNAL continue its sphere of usefulness. Dr. William G. Spiller remains the Editor, Dr. L. Pearce Clark, late of Craig Colony and now, temporarily, in Vienna, will become an ASSOCIATE EDITOR, and Dr. Smith Ely Jelliffe, the former Associate Editor, becomes the managing and responsible editor.

The Board of Editors has been enlarged by the additions of Dr. William Osler, Dr. Frederick Peterson, and Dr. Wharton Sinkler.

The JOURNAL still remains the organ of the Neurological Societies which it formerly represented, and save for a slight increase in size and the change in the Managing and responsible Editor, remains as before.

Special attention is called to our Periscope department in its altered form. Here the entire field of nervous and mental diseases will be covered monthly, and our subscribers will be furnished with a résumé of what is being done in this branch of medical science the world over. The Bibliography of American Neurology, so arranged in the form of cards, permits of the making of a very valuable series of references of American workers, thus completing the résumé.

The Board of Editors and the direct Editorial Management desire the hearty support and cooperation of their fellow practitioners in their endeavor to make the JOURNAL OF NERVOUS AND MENTAL DISEASE a worthy representative of American neurological and psychiatric medicine.

Progressive Medicine.—The announcement by the Maltine Company on page I of our advertising form is worthy of special attention. They announce prizes of \$1,000 and \$500 respectively for the best essays on Preventive Medicine. The judges chosen occupy a high position in the profession.

THE
Journal
OF
Nervous and Mental Disease.

Original Articles.

A CASE OF MYASTHENIA GRAVIS.

BY EDWIN A. DOWN, M.D.,

HARTFORD, CONN.

FORMERLY PHYSICIAN TO CONNECTICUT STATE HOSPITAL FOR INSANE;
HARTFORD RETREAT FOR INSANE; PRESIDENT CONNECTICUT
STATE BOARD OF CHARITIES, ETC.

It is a conspicuous fact in the history of medical science, that following the accurate description and correlation of various symptoms observed in an individual, cases of questionable diagnosis come into alignment; and though the question of terminology is not always promptly decided, the disorder itself is properly accredited as a "new disease" presenting its symptomatic appeal to the diagnostician and therapist.

Doubtless cases of the class to be considered have been disposed of under such labels as atypical tabes, bulbar paralysis, hysteria, Landry's paralysis, and other convenient make-shifts, the use of which is not confined to the science of medicine.

Omitting for the present all useless discussion regarding propriety in nomenclature, it seems to me sufficient to state that only two names can be said to be fairly in competition for precedence.

The designation myasthenia pseudo-paralytica gravis

suggested by Jolly, and asthenic bulbar paralysis by Strümpell, are those most commonly employed in the literature of the subject; and it is merely a matter of individual preference which led me to adopt the former in this article, chiefly for the reason that it is descriptive, and is non-committal regarding the pathology of the disease which, as yet, has not been satisfactorily determined. The disorder is rare; only eighty-one cases having been recorded in this country and in Europe. If I am correctly informed mine is the seventh case recorded as occurring in America.

The history of this case describes a male, twenty-three years of age; occupation baker; habits regular; no history of syphilis or drug addiction; has been married about one year.

This is the first attack, and up to the time of the examination had continued ten months.

The evolution of the disorder has been slow; cause not as signed; family history excellent, and heredity is consequently denied. His father, who accompanied him to my office, is sturdy, well-developed, about six feet in height, and is a capital specimen of both mental and physical endowment. He is sixty years old, his wife fifty-five, and in good health body and mind-wise. No form of mental or nervous disease or diathetic tendency was admitted as having occurred in either direct or collateral antecedents. Further inquiry into the family record discloses the fact that the patient is the sixth in respect of age in a family of sixteen children by the same parents. Eight of each sex constituted this prolific offspring, and all passed safely through the diseases incident to early childhood. Four of each sex have died; not one of these living beyond the period of eight years; cause of death not given. The recurrence of the number four and its multiples may arrest the attention of those who perceive something significant—(though not scientific) in the witchery of numbers.

As the patient entered my office, I was immediately aware of the existence of double ptosis, and noticed a backward thrust of the head which I discovered was an attempt on the patient's part to overcome the effect of the oculo-motor palsy. His general appearance was neat, and, physically there was nothing to criticize aside from the condition already noted. His gait was normal and station unaffected. Ptosis being the prominent objective symptom, an investigation of the field of the cranial nerves was first instituted. In addition to the ptosis which was more marked on the right side, the ophthal-

moplegia included the orbicular muscles, rendering complete closure of the eyes an impossibility. The reflexes concerned with light and accommodation were normal, and the pupils were neither contracted nor dilated. Upon using the ophthalmoscope, the only feature claiming attention was a deeper coloration or pigmentation of the fundus of the right eye, rendering the detection of the course of the blood vessels a matter of some difficulty.

Prior to his coming under my observation, diplopia had existed, and manifests itself occasionally at the present time when the patient is greatly fatigued; but at the time of my examination this feature was absent.

The earliest symptom observed was ptosis; but this was not apparent to him at first, for the knowledge of its existence came from members of his family, who, while sitting opposite him at table observed the phenomenon and directed his attention to its presence. For several weeks preceding its occurrence he had been annoyed with uncomfortable, and non-describable sensations about the head, but did not associate these in any manner with his present condition; and said he would not have thought of mentioning them if I had not questioned him; but considered them as due to working in the high temperature existing in the bakery. He stated that he had noticed a difficulty in closing the eyes soon after the appearance of the ptosis, but did not find this sufficiently annoying to justify his consulting a physician. As the disease progressed, he found at first difficulty, then total inability to read on account of the words and letters "running together"; sometimes one, and sometimes both; but chiefly the latter.

Coincident with the appearance of the visual symptoms, he became aware of an increasing difficulty in articulation. This condition is not constant and varies in direct ratio with the length of conversation. Members of his family described his utterances as "thick"; and this feature was well exhibited before he left my office; for while at the outset of our interview he manifested no impairment of this function, as the examination progressed words and phrases became less distinct, and finally he acknowledged his inability to control his tongue, the movements of which were not coöordinated, and its action paretic. The sensation accompanying this difficulty in articulating he represents as a "tired or weak feeling in the tongue."

Another annoying symptom attributable to this same member consists in the trouble experienced in managing food after its introduction into the mouth. From his description,

it appears that there is first incoördination of the lingual muscles, resulting in the inability to place the food between the teeth prior to mastication or to properly direct the course of the bolus preparatory to swallowing. He described his distress in endeavoring to either force the food into the pharynx or eject it from his mouth; and has repeatedly been compelled to remove the food with his fingers and place it between the teeth by the same means; or, if the food has been masticated, similar methods were enlisted in order that it might safely reach the pharynx. But the difficulties do not terminate here. During the past few months he has been quite apprehensive on account of "cramps" in the throat which are present when he attempts to swallow either solids or liquids. This condition is becoming intensified, and though not invariably present is so unsettling in its manifestations as to justify his feelings of alarm. These "cramps" become evident without premonition; and as soon as the food reaches the pharynx it is almost immediately ejected in large part through the nose. Then follow coughing and sneezing with other uncomfortable sensations, memories of which render the prospect of a savory meal not an unmixed pleasure. The patient stated that he was compelled to incline his head to the left during attempts at swallowing; and then much time was consumed in conducting the food into the pharynx, as previously stated. Another feature connected with the unruly member is the asthenic condition observed in his attempts to keep the tongue protuded for more than a few seconds at a time. There is no deviation, but a slight tremor was noticed when he signified that the position of the tongue was causing fatigue. An examination of the oral and pharyngeal cavities revealed the existence of paralysis of the right half of the velum palati; and, in his attempts to pronounce test letters and syllables, the left half of the palate was raised to its normal height while the right remained flaccid and pendulous. This condition afforded an explanation of the tendency to incline the head toward the left side during the act of swallowing, as well as the regurgitation of the food through the nose. Associated with the loss of power in the velum palati, another interesting phenomenon became apparent. Among other accomplishments our patient has acquired the art of performing on the harmonica; but this is attended with such difficulties at present that but little satisfaction is derived from this source. He states that after a few strains have been played he is compelled to desist owing to "lack of wind;" this means that most of the air passes through the nose instead of the mouth, and consequently the tones are

not forthcoming with normal intensity. In his determination to solace himself with his instrument, he circumvents the difficulty of "lack of wind" by employing a method both novel and picturesque, though it does not appeal to the strictly aesthetic sense. The procedure is simple enough, and consists in closing the nostrils with the thumb and one finger of the left hand, or if this proves inconvenient, a device similar to a spring clothes-pin proves an acceptable substitute. The closing of the nasal passages was, however, but one factor in the solution of the problem of the presence of dyspnea. Upon testing the muscles of respiration, it was found that after deep or rapid breathing these muscles soon became exhausted; but in harmony with other muscles they regained their power after resting. This weakness of the respiratory muscles was in part responsible for the unsatisfactory musical performances which were not wholly the result of the condition of the refractory palate.

Other muscles showing a paretic condition included those of mastication. This was easily demonstrated when I placed my pencil between his teeth and directed him to use every effort to prevent my withdrawing it. This he found was impossible; and as I readily removed it, I found there were not even the marks of his teeth upon the soft wood pencil. The fact of his having been under examination for more than an hour may account for this symptom being so marked, for he stated that this "weakness" of the muscles of mastication was less frequent than other symptoms, and was clearly the result of becoming "tired."

Another, and the chief symptom for which he was referred to me, is the sudden loss of power in both hands and feet. While walking or standing, and without premonition, he suddenly drops in his tracks, usually becoming perfectly helpless for variable intervals, and requires assistance in order to assume the standing posture. On exceptional occasions he has been able to bring himself to an erect posture by "climbing the thighs", a symptom considered by some as being diagnostic of pseudo-muscular hypertrophy. There is never any sensory disturbance preceding these attacks, and consciousness is never altered.

Vertigo has not been present up to the date of the examination. There are no swaying movements, and his gait presents nothing abnormal.

The myasthenic condition involved many groups of muscles, and I will record one or more instances in order to show how general the condition had become. Coming from a thrifty stock, this young man occupied his time after his regu-

lar day's work in some profitable employment. Repairing shoes is his chief acquirement in this direction, and it was while tapping shoes that he discovered his inability to pick up the nails with the left hand or remove the index finger in time to avoid a blow from the hammer. He can compass the difficulty in part by the use of the middle finger and thumb, but before striking a blow with the hammer he is obliged to use the right hand in pushing the index finger out of the way. Another instance, and one which exhibits the complete loss of power in the lower limbs, was afforded when he attempted to alight from his bicycle after riding variable distances. In his efforts to dismount he discovered his inability either to throw the outside leg over the frame of the bicycle, or to support the body upon the leg first to touch the ground. He has repeatedly fallen "in a heap" with the bicycle on top and clothing very much disarranged and soiled. After a series of such experiences, he found a more satisfactory method in running beside a fence where some support could be obtained, and after a brief rest he was able to alight with some degree of comfort and safety. As might be inferred he now has abandoned cycling altogether.

It must be stated that these symptoms were not constant, for he would enjoy a respite of a number of weeks, during which all of the symptoms disappeared: and he encouraged himself with the hope of a complete and speedy recovery. It was after his second relapse that the case was referred to me.

With the foregoing symptoms in view, the presence of the myasthenic reaction was necessary in order to confirm the diagnosis; and the use of the interrupted current next occupied attention.

The results of electrical stimulation were not constant, and the possibility of forming an intelligent opinion regarding the behavior of a given muscle or muscle group, was far removed. The application of a strong interrupted current had the effect of producing satisfactory contractions, and the characteristic myasthenic reaction was obtained over a large area. Singularly enough the muscles recently used were not always first to become exhausted; and upon different examinations those which seemed to be most easily fatigued, sometimes recovered their normal tone more quickly than others having greater resisting power. The observation of Murri that, following the exhaustion of the muscle due to the faradic current voluntary power was still retained, found full corroboration in this case. In a case of Buzzard's the patellar reflex was preserved after exhaustion of the *vastus internus*

by faradism. In the case we are considering there were no polar alterations and exhaustion by galvanism was not obtained.

Regarding the pathology of myasthenia gravis, much has been written tending to show that muscles having a bulbar innervation are the ones whose functions are most disturbed; while another contention represents the cortical centers as being responsible in greater degree. The prevailing opinions of eminent authorities have been so well presented by Campbell and Bramwell (*Brain*, Summer No. 1900) as to render any views of my own based upon the observation of a single case little else than presumptuous.

Regarding the case in its etiological bearings, I hesitate in even suggesting anything in the habits, mode of living or other feature of the case which could be said to be remotely connected with the morbid though temporary condition of the muscular system.

Here again is ample range for speculation; and I will incorporate a quotation or two for the purpose of showing some of the points investigated, which may act as stimuli to further inquiry. Buzzard, for instance, states that, "it has been supposed to depend upon the presence of a poison in connection with, perhaps—disordered metabolism: and certainly the remissions and exacerbations point in that direction. It is impossible to hazard more than a guess as to whether the higher or lower motor neurones are affected by the supposed toxin, but in my opinion the balance of probability points to the cells of the motor cortex." Plausible as this theory appears in type, it loses much of its force when confronted with the results of Bramwell's experiment of employing massage when the muscle was exhausted by the usual methods. He found that "the period of rest which was required for restoration of function was not diminished by this process;" he therefore concluded that "the disorder was not myopathic and occasioned by toxines."

In a few of the cases reported, muscular atrophy was observed; but the percentage in which this occurred is so small as to lead to the belief that its presence is quite exceptional. In my case this feature was absent.

The diagnosis depends on two positive factors, viz.: the rapid exhaustion of the voluntary muscles on exertion, and the myasthenic reaction. Negatively from the absence of sensory disturbances (slight in this case), nutrition not impaired, no atrophy, no indications of the spinal cord being involved. It has been asserted that a diagnosis can be made from the facial expression and nasal speech. I believe I am correct in the statement that the presence of the myasthenic reaction is conclusive, though, be it remembered this symptom may, exceptionally, be absent.

Prognosis is unfavorable in most cases, and almost invariably so in cases in which the respiratory muscles are involved. Two years is an average duration in these cases proving fatal. In one case death occurred in fourteen days after the appearance of the symptoms. In one of our American cases, that reported by Dr. Max Mailhouse, the duration was but thirty days. On the other side the extreme of fifteen years was reached in a case reported in Germany.

Thus far no satisfactory treatment has been discovered. In addition to what would ordinarily be suggested in the effort to restore impaired function and cell nutrition in a routine fashion, animal extracts have been employed, but with little success. Thyroid extract, Buzzard claims is "unreliable." Suprarenal extract and strychnine hypodermatically "have no effect." Tube-feeding is to be deprecated.

My suggestion to this patient was to take prolonged rest, use nourishing foods, attend to the excretions, and exercise in the open air for brief periods.

The statement to the friends was to the effect that the ultimate prognosis was decidedly unfavorable; but owing to the apparent robust condition of the patient, the occurrence of a series of remissions or actual intermissions would fulfil every reasonable expectation.

REPORT OF CASE OF EXCEEDINGLY RAPID AND VERY SLOW RESPIRATION, WITH PAUSES IN RESPIRATION VARYING FROM TWENTY SECONDS TO TWO MINUTES IN DURATION IN A PATIENT SUFFERING FROM TUBERCULOUS MENINGITIS, SYPHILITIC PERIARTERITIS OF THE PONS AND MEDULLA AND FROM HYSTERIA.¹

By J. T. ESKRIDGE, M.D.,

DENVER, COLO.;

ALIENIST AND NEUROLOGIST TO THE ST. LUKE'S HOSPITAL AND CONSULTING ALIENIST AND NEUROLOGIST TO THE ARAPAHOE COUNTY HOSPITAL.

Mrs. B., white, *aet.* 29, widow, born in Kansas, teacher by occupation, was first seen by me in consultation with Dr. Brasher, November 3, 1899.

Family history.—Father died of cancer of the bowel and stomach; mother of consumption; other members of the family suffered from lung trouble; two of mother's sisters died from pulmonary tuberculosis.

Personal history.—She was well and strong in childhood. She had scarlet fever at her fifteenth year, but seemed to recover perfectly. She began to menstruate at her fourteenth year, and was comparatively well up to the time of her marriage, at nineteen years of age.

Six months after her marriage she was in a railroad wreck. She was thrown forward with considerable violence and the top of her head struck the upper edge of the seat in front of her. Immediately after she complained of great pain in the posterior portion of her head and in the cervical and upper dorsal region of the spine. She was confined to her bed for a period of three months, suffering from nervousness, apprehension, great prostration, headache, and developed general hysterical symptoms. During the paroxysms she would throw herself from one side of the bed to the other, scream and pull

(The most rapid respiration was 140 to 142 per minute, the slowest from 2 to 3 per minute, the latter extending over prolonged periods.)

¹Read before the Rocky Mountain Interstate Medical Association at its Annual Session, September 3 and 4, 1901.

her hair with both hands. At these times she had repeated convulsions, which, evidently, were hysterical in character, as she assumed an opisthotonic position, with body arched forward, so that she threw her entire weight on her feet and back of head. These paroxysms were short in duration, but recurred repeatedly for several months, and occasionally up to the time of the development of her fatal illness and were present during the early portion of this. It was thought that she had had one or two miscarriages two or three years after her marriage, but I could not learn anything definite about these, because I saw her too late to get a reliable history from the patient. During four or five years immediately succeeding her marriage she had lived in Oregon with her husband several hundred miles from her family and most intimate friends.

Six years after her marriage she gave birth to a syphilitic child. It had all the ear-marks of syphilis and lived only a few weeks after birth. Her husband was known to be infected from syphilis.

Soon after the death of her child she separated from her husband, returned to Denver and lived with her relatives a while. During her stay in Denver, Dr. Brasher, who was the family physician, saw her and detected some tubercular trouble in the apex of the left lung. She improved and was able to support herself by teaching school, although she occasionally, especially when overworked or worried, would have a slight hysterical paroxysm.

After residing six weeks in Cripple Creek, at an elevation of about 9,000 feet, on October 25, 1899, she was seized, while sitting in her chair, "with a fainting spell," and this was followed, almost immediately, by a hysterical paroxysm. This attack was relieved by a hypodermatic injection of morphine, but as soon as the medicine began to lose its effects, she became hysterical, complained bitterly of headache, great weakness, a smothering sensation, and if not relieved by morphine, would pass into an apparent hysterical paroxysm, during which she would scream, pull her hair, arch her body forward and throw herself from one side of the bed to the other. It was stated that her body and limbs assumed all kinds of positions seen in the major attacks of hysterical paroxysms. I have been unable to learn whether her pulse, temperature and respiration were observed.

On November 1, 1899, her sister brought her to Denver and placed her under the care of Dr. Brasher, with whom I saw her two days later.

Examination, November 3, 1899.—The patient is lying

in bed moaning, holding her head with both hands and complaining of headache. She is pale, anemic and evidently has lost considerable flesh, to which her sister, who had been with her in Cripple Creek, testifies. She is nervous and manifests many hysterical symptoms. Dr. Brasher tells me that he had been able to give her relief from headache and secure sleep only by the administration of morphine hypodermically. He corroborates the statement of her relatives that she is taking but little food and that she vomits most of that which she takes. I am informed that even a few teaspoonfuls of water make her vomit.

No paralysis or special weakness of any group of muscles is found. The deep reflexes are increased, but there is no ankle-clonus. The tendo-Achillis reflexes are well marked. The superficial reflexes are present. The plantar reflexes are normal in character. No loss of general sensation is detected. The organs of the special senses appear quite acute, with the exception of those of vision. Here the fields of vision are narrowed and the acuity of vision is lessened. It is difficult accurately to test vision on account of the severe headache from which she seems to be suffering. She is conscious, but her answers to questions do not seem to be always reliable. The optic discs are pale, but not atrophied. The pupils are equal and respond well to light and accommodation. She had not, at any time, complained of diplopia, and none is found at the time of my examination. The temperature at 11.30 A.M. is 100° F.; pulse 120; respiration 24, and otherwise normal in character. Dr. Brasher states that the temperature during the two days that he had attended her had varied from normal or below to 102° F.

I express the opinion, that while many of the patient's symptoms are hysterical in character, she is suffering from some obscure disease of the brain. Its exact nature I am unable to determine.

The heart is free from disease, the apex of the left lung is partially consolidated, but the other viscera show no evidence of disease.

A course of treatment, in which codeine is substituted for morphine, when an anodyne is absolutely necessary, is outlined.

Five days later Dr. Brasher reported to me that the patient seemed to be getting worse, he could not get along without morphine and requested me to put the patient in St. Luke's Hospital and take sole charge of her.

She is admitted into the hospital November 8, 1899, at 3 P.M. She is complaining of headache, pain in the abdomen

and constant nausea. Appetite is poor and she vomits occasionally even after taking only water. She is restless, moans a great deal and seems very miserable. At 4 P.M. T. 100.4° F.; P. 92; R. 24. The temperature by 6 P.M. is slightly below 99° F. and remains so until 3.45 A.M., of the 9th, when it, while she is sleeping, rises to 100.8° F.; pulse and respiration remaining about the same as recorded one hour after her admission into the ward. At 9 A.M. and 12 M. of the 9th temperature is 102° F.; pulse 104; respiration 24.

The patient is exceedingly weak, has lost some flesh since I had first seen her in consultation several days previously. The character of the pulse is not good. It is irritable, poorly sustained and the volume is small. I detect nothing in the character of the respiration to arrest attention.

A careful examination reveals nothing beyond what I had observed at my first visit before the patient had been brought to the hospital. It is reported that the patient was sleeping very poorly before she was brought to the hospital, but the first night in the hospital she slept six hours without an anodyne or a hypnotic. While she is still hysterical she has shown no violent outbreaks like those that had been observed while she was at home. The urine contains neither albumin nor sugar. An examination of the lungs reveals no active trouble. There is some dulness over the left apex and a little prolonged expiration in this portion, but there are no râles of any kind. There is neither cough nor expectoration. Neither the liver nor spleen is enlarged.

The irregular character of the temperature made me apprehensive lest there might be some organic brain trouble. Its tendency to be higher in the morning than in the afternoon determines me to try methylene blue lest she may be suffering from chronic malaria. She had lived in a malarial district and her head pain is said to be worse during the latter part of the night. The medicine after several days' trial has no appreciable effect. On account of pain in the lower portion of the abdomen, Dr. W. A. Jayne is requested to make an examination of the uterus and its appendages. He finds no inflammation, no ovarian trouble, nothing beyond a displacement of the womb.

November 10, 9 P.M., T. 103° F.; P. 104; R. 24.

November 10, 10 P.M., T. 103.7° F.; P. 108; R. varies from 10 to 22 per minute. She is in a stuporous condition. The temperature is taken in the left axilla. There are distinct intermissions of respiration while the patient is asleep. Breathing is more rapid while the patient is asleep than while she is awake. Both optic nerves appear more congested than

normal and there is venous engorgement of the discs. The condition may be termed a passive hyperemia. The reflex from the lymphatics of the disks and fundi is quite marked. She has complained once or twice during the day of not being able to see for a short time. She is taking a capsule to relieve pain, containing phenacetine 2 grs., caffeine 1 gr., extract cannabis indica (Hering's) 1-6 gr., codeine, 1-4 gr., monobromate of camphore, 2 gr., given every two or three hours if necessary. Ten grs. sodium bromide are ordered to be administered every three hours, while she is restless. She receives no morphine after she enters the hospital.

On account of the history of syphilis she is given inunctions of mercurial ointment thrice daily and potassium iodide is administered internally.

At 12 o'clock, midnight, the temperature has dropped to 100.4° F.; pulse to 98 and respiration to 14. Early in the morning of the 11th the temperature is about normal. At 8 A.M. of the same morning I find respiration rapid and irregular in frequency and character. It varies from 36 to 38 per minute. She is inclined to fall asleep while I am sitting by her bed. The respiration increases in frequency as soon as the patient falls asleep. The temperature rises during the morning and registers 102.4° F. at 12 M., and drops one or two degrees during the latter part of the day.

Nov. 12. Projectile vomiting on awakening in the early morning. Respiration 26 while awake, 32 while asleep. Temperature at 9.30 p.m. is 103° F. It is observed during the early part of the evening that respiration is irregular at times. Some respiratory acts are much longer than others. This occurs only while she is asleep. The disks present a condition of hyperemia, with slight obscuring of the edges of the disks, especially on the temporal sides. She is nauseated at times during the day and occasionally vomits.

Nov. 13. Complains of pain in post cervical muscles. Slight optic neuritis is apparent. Respiration varies from 13 to 40 per minute during the day; temperature from 102° to 104° F., highest at 6 A.M.; the pulse varies but little. At noon I note that the breathing varies from 13 to 34 during the few minutes that I spend in watching her. The rapid respiration and the distinct intermissions invariably occur while the patient is asleep. Respiration is becoming "up and down," or "ascending and descending" in character without the intermissions seen in Cheyne-Stokes breathing.

Nov. 14. Respiration intermittent in character only while asleep, 29 respirations in 3 minutes. Intermissions 25 seconds in length occur. During the intermissions the patient sleeps

calmly, but as soon as respiration is resumed the muscles of the face, especially around the nose and over the forehead, contract, evidently on account of pain. Each respiratory act following a prolonged intermission is accompanied by a sigh, or, it is more properly termed, a groan of distress. Legs are flexed at knees and thighs at hips.

Nov. 15. Patient is in a stupor and lies with mouth open; temperature variable, pulse and respiration increasing in frequency. The legs are no longer flexed at knees and hips.

The next few days witness but little change except the temperature is lower, the pulse less frequent and poorer in quality, and breathing is becoming more rapid. From the 18th to the 20th respiration is about 50 per minute. She is unconscious for 4 or 5 days. Double optic neuritis without much swelling of the disks. Slight hemorrhagic extravasation on the nasal side of right disk and on the temporal side of the left.

Nov. 21. Eight A.M. T. 100° F.; P. 124; R. 44; respiration is irregular and very shallow. If not aroused she lies in a stuporous condition. She lies with eyes open wide; there is almost constant nystagmus, occasional twitching of face muscles and constant delirium while awake. Respiration while awake varies from 10 to 16 per minute, while asleep it is 40 and decidedly intermittent and very shallow. Pulse 135. She is troubled a great deal with hiccough.

On Nov. 22, temperature about normal, pulse 110; respiration 10 to 11 per minute while awake, 34 while asleep.

Nov. 26, little change to note in patient's condition since the 22nd. At 8 A.M. a chill occurs, lasting 20 minutes, pulse becomes imperceptible, respiration 9 per minute. She vomits a great deal during the day. No rise in temperature during or following the chill.

Nov. 28. Temperature about normal, pulse 66, respiration varies from 5 to 11 per minute for nearly 36 hours. Several intermissions in respiration varying in length from 1 1-2 to 2 minutes occur. I observe intermission of 90 seconds in duration. The nurse, who is very accurate, registers several intermissions of 2 minutes in length during the night in which no attempt at breathing could be detected. Death seems imminent for three days during which it is almost impossible to get her to swallow any nourishment. At one time while I was present she ceases to breath for a period of 110 seconds, her face becomes cyanosed, and her whole body rigid. On adopting artificial respiration she begins to breath and the muscles relax.

During the next two or three days respiration remains

very slow, then it begins to increase in frequency and on December 3 varies from 13 to 66 per minute. No change in temperature or pulse. December 4, temperature low, 95.8° F.; pulse rapid, 128; respiration 18 to 58.

Dec. 6, respiration 82; P. 130; T. 101° F.; patient is unconscious, and has been so most of the time since November 28.

Dec. 13, pulse and temperature about the same, but respiration from 54 to 110; most of time during 24 hours it is above 80.

Dec. 14, respiration reached 142 per minute. I count it when it is 130. Patient unconscious. Both optic nerves white. The tabular view of the respiration is exceedingly interesting for the next few days or weeks.

Dec. 18, post-cervical muscles quite rigid and head retracted slightly.

Dec. 26, head greatly retracted, pulse very difficult to count, it is small, weak and varies from 130 to 150 per minute.

Jan. 4, respiration 138.

Jan. 9, death occurs at 8.45 P.M. Respiration remains rapid, varying from 50 to 100 or more until a few hours before death. During the last four hours of life respiration varies from 24 to 30. Fifteen minutes before death it is 24. The temperature one and three-quarters hours before death is 104.2° F.; 45 minutes before death 102.6° F.; at death 100.4° F. About six weeks before death two bedsores began to form, one just to each side of the lower portion of the spine. These proved rebellious to care and treatment and great sloughs formed. There was little more than skin, bones and tendons left at the time of death, so extreme had emaciation become.

Autopsy, 15 hours after death. Permission was obtained to examine the brain only. Post-mortem rigidity was well marked.

Nearly all the adipose tissue had disappeared from the scalp; no abnormal adhesions of the dura to the bone. Over the entire convex surface of the brain the membranes and cortical substance of the brain appeared free from any pathologic change. The membranes were easily detached without tearing the cortex. The brain was removed intact, without difficulty, from the lower cavity of the skull. The lateral surface of the brain presented nothing abnormal, except at the fissures of Sylvius. Here the temporo-sphenoidal lobes are separated with great difficulty from the frontal lobes on account of thickening of the membranes and the adhesions that had formed between them and the brain cortex. The pia at

these points could not be detached without tearing the cortex. On exposing the upper portions of the fissure of Sylvius, they were found the seat of inflammation and the blood vessels were engorged. The pia was greatly thickened, adherent to the cortex, and every little vessel was distended with blood. Along these portions of the middle cerebral arteries numerous tubercles and small tubercular nodules were found.

On laying the brain on its convex surface and exposing the basilar surface, the lower portions of the fissures of Sylvius presented a condition similar to that found in their upper parts, including the deposition of tubercles along the vessels. There was only slight congestion along the anterior cerebral arteries, the tubercles were few and the thickening of the pia was slight. Over the optic chiasm and surrounding portions, the pia was greatly thickened and firmly adherent to the brain and chiasm. This evidently accounted for the optic neuritis and later for the atrophy of the optic nerves. Along the posterior cerebral arteries as they wind around the pons, especially on its posterior surface, the structures were inflamed, numerous tubercles were found and the pia was thickened and adherent to the brain. Both lateral ventricles contained considerable opaque, turbid-looking fluid in which there was found a quantity of flocculent substance, probably lymph. In each posterior horn, more abundant in the right than in the left, there was a deposit of yellowish lymph or pus. It had the appearance of pus, but was free from any odor. The lateral ventricles were considerably distended, the fourth ventricle and the iter were slightly enlarged.

On making the usual incisions into the cerebral and cerebellar substance the parts were normal in appearance, except that they were nearly bloodless. The pons and medulla were cut into blocks, but the blocks were not entirely detached from each other, so as not destroy the relations between any of the parts. These were placed in a one per cent. solution of formaldehyde and given to Dr. Wm. M. Mitchell, together with the fluid from the lateral ventricles for microscopic examination.

REPORT OF DR. MITCHELL, FEBRUARY 13, 1900.

About 35 c. c. of fluid from the lateral ventricles were centrifuged and the sediment examined, both stained and unstained. No tubercle bacilli could be demonstrated. The sediment was found to consist of red blood cells, pus cells, fibrin and granular detritus.

The medulla oblongata and pons were hardened in weak solution of formaldehyde and when sufficiently prepared, sections were made and stained with various reagents.

Particular attention was paid to the sections which were made through the region of the respiratory center. Here it was found that there were areas of round-celled infiltration which were confined principally to the capillaries and smaller arteries. These areas were particularly numerous in the region of the floor of the fourth ventricle. When a small vessel was cut lengthwise, as there were several running lengthwise along the floor of the ventricle, the infiltration was plainly visible extending along the entire length of the vessel, and the uniformity of the cellular growth gave the arteries a heavy, inflamed appearance. When a small vessel was severed crosswise, the round cell growth could be plainly seen investing the vessel and extending into the surrounding tissue.

No giant cells were visible and no areas of softening were discovered.

The sections gave typical pictures of what I take to be small or miliary gummata, or periarteritis.

Before attempting an explanation of some of the remarkable symptoms of this case I will give a short résumé of the most important features of the clinical history.

From November 8 to November 27, respiration varied from 10 to 60 per minute, but it usually was about 24. The pulse ranged from 90 to 128; the temperature from 98 to 103° F.

For about 36 hours following the 27th respiration varied from 2 to 11 per minute, but usually it was about 4 or 5, with, at times, complete intermissions in respiration, lasting from 40 seconds to 2 minutes. The pulse during this time varied from 90 to 162; the temperature was slightly below normal.

The next 24 hours, the respiration varied from 9 to 16 per minute, the pulse from 90 to 162; temperature was subnormal.

For 24 or 36 hours following the last period just noted, respiration ranged from 2 to 18 per minute, but it usually was exceedingly slow, pulse 100 to 130; temperature slightly above normal.

The first 12 days of December respiration varied from 4

to 80 per minute; pulse averaged about 80, but sometimes reached 130; temperature 99 to 100° F. There seemed to be no relation between pulse and respiration.

From December 12 to 19, respiration occurred from 42 to 142 per minute and averaged over 90. The respiration at times was more rapid than the pulse. Temperature and pulse were about the same as noted during the first twelve days of December until the latter part of this period, in which the pulse began to increase in frequency, and the body heat to rise and respiration to lessen in number per minute.

From December 19 to January 9, when death took place, the respiration varied from 8 to 138. It usually was rapid, ranging from 40 to 80 or 90 per minute. The pulse most of the time was rapid, but about as fast when the respiration was slow as it was when the respiration was quick. It was noted throughout the progress of the case the slight, or almost imperceptible, influence codeine had on modifying the rapidity of respiration. The temperature continued above normal most of the time during the last three weeks of life.

Seventeen days before death the patient became conscious, rallied and was able to converse rationally nearly all day.

Nine days before death, she again became conscious, but was unable to speak so as to be heard. She seemed entirely blind.

It was observed repeatedly during her unconscious periods, sometimes lasting several days or a week, that the frequency of respiration would vary from 28 to 68 within two minutes. These variations occurred without her moving or any one disturbing her. It should be noted that extremely rapid or slow respiration never occurred while the patient was fully conscious.

It should be remembered that intermissions in respiration first occurred while the patient was asleep and were always most marked at this time, or during the periods when she was profoundly unconscious. The respiration was most rapid, or slowest, when it varied from the normal, while the patient was asleep, or unconscious from other causes. Extreme rapidity of respiration, 100 to 142 per minute, or extreme

slowness of respiration, from 2 to 4 per minute, only occurred during periods of profound unconsciousness and never during normal sleep.

Pathology.—So far as I have been able to learn none of Mrs. B.'s relatives have been hysterical. She was not hysterical until after she was injured in a railroad wreck when she was nineteen and one-half years of age. Just the exact nature of the injury no one will ever know, but the patient complained bitterly of pain in the back of the head, in the upper portion of spine, almost immediately after her body had been thrown forward with considerable violence, the top of her head striking on the upper edge of the car seat in front of her. Soon after this accident she manifested hysterical symptoms and was confined to her bed for a period of three months. She remained hysterical ten years, or the remainder of her life. In her case I think we are justified in presuming that she sustained at the time of the wreck some organic lesion in the medulla, pons or adjacent parts, and that the subsequent hysteria was the screen by which the true state of affairs was hidden from view, or, as Dr. S. Weir Mitchell has expressed it, "Hysteria was painted on an organic background."

We know that injuries to the brain determine to a certain extent, the location of syphilitic lesions of this organ. It is probable that the old injury to the medulla rendered the arterioles in this locality more vulnerable to the syphilitic poison than those of other portions of the nervous system. To what extent the tubercular meningitis modified the symptoms of the lesion in the respiratory region of the medulla, it is impossible to say.

Points in the diagnosis.—It must be conceded that the problem of diagnosis was a knotty one before the symptoms of organic disease developed sufficiently to render it evident that hysteria was simply the result of organic disease of the brain. The history of an injury to the head and of syphilitic infection many years previously and the presence of tuberculosis of the lungs, together with fever, made it very probable that the patient was suffering from organic disease of the brain. On the other hand we occasionally meet with hyster-

ical subjects in whom we are unable to find any organic disease with fever varying from 100 to 101° F. or more, especially during the latter part of the day. Dr. S. Weir Mitchell and others have reported many such cases. A history of syphilitic infection, or the presence of tuberculosis of the lungs is only corroborative and never positive evidence of organic brain trouble in such cases as the one reported in this paper. The history of hysterical manifestations extending over a period of ten years, the symptoms varying but little in character during these years, pointed strongly to hysteria. Yet there was something about the patient's appearance, especially the marked wasting, that I was informed had taken place within a week, which made me suspicious of organic disease of the brain. I so expressed myself at the time I first saw the patient, but a more definite diagnosis I would not attempt.

After she was placed under my care the first positive sign that I had of organic disease was the respiration being more rapid while the patient was asleep than while she was awake. The irregular character of the temperature, being higher in the early morning than during the latter part of the day, indicated some inflammatory disease of the brain. Unless I had had the services of an excellent and closely observing trained nurse, I should have been kept in the dark in regard to the diagnosis longer than I was.

How are we to explain the very rapid and the extremeiy slow respiration in this case, together with the phenomenon that there was no apparent relation between the number of respirations and the frequency of the heart's action?

The normal frequency of respiration is about 16 to 24 per minute. The relative frequency of respiration in health to that of the pulse beat is about one to four. In hysteria and in certain diseases, but more especially in those lesions affecting the pneumogastric nerves, or their branches, this relation is lost, and the number of respirations per minute may equal or exceed the number of heart beats per minute.

Dr. S. Weir Mitchell says: "Hysteria breaks all laws, except its own rules of eccentricity."² On the same page he

²"Lectures on Disease of the Nervous System, especially in Women," p. 199, edition of 1885.

gives a tabular view of the pulse and respiration of a hysterical woman whose average frequency of respiration to pulse beats "was about as one to two; and on one day at the same time, respiration was 89 per minute and pulse 88." On page 200 he mentions a case which he saw with two other physicians. The patient had passed into a state of stupor, from which, for two days, it had been impossible to arouse her. The pulse was about 90, respiration was almost imperceptible, but on careful count it was found to be 96 per minute. Dr. Mitchell gave the opinion that the case would, in the end, prove to be hysterical, and he adds, "An opinion justified within a few hours by the repeated occurrence of very violent hystero-epilepsy."

Dr. Mitchell reports a most remarkable case³ in the person of a soldier who was shot in the right chest on May 31, 1862, while engaged in the battle of Fair Oaks. The injury resulted in great hyperesthesia of the right lower chest. The ball passed into the lung, and caused bleeding from the lung and was thought to have become encapsulated and remained in the chest cavity. About eight years later, Dr. Mitchell found the patient still suffering from hyperesthesia of the chest, and in addition from very rapid respiration. When the man was quiet in his room, the pulse was 74, respiration 66 per minute. After running up and down one flight of stairs twice, his pulse was 100, respiration 108 to 110 per minute. Ten days later, the respiration and the heart beats were the same per minute, viz., 78. A little exercise caused the heart to beat 95 times per minute and the respiration to increase to 125. The patient was taken before the College of Physicians of Philadelphia, but no one could give an explanation of the remarkable phenomena. I will not tire you with reference to further cases. I have said sufficient to remind you that hysteria is at times attended by exceedingly rapid respiration. Let us study the results of physiological experiments on the pneumogastric nerves before attempting to account for much of the curious conditions observed by Mitch-

³*Ibid*, pp. 201 to 207.

ell and some of those observed by me in connection with the case of Mrs. B.

If both pneumogastric nerves be divided the number of respirations falls in some animals to 2 or 4 per minute. If the central ends of the pneumogastric are gently stimulated, the respiration increase in frequency beyond the normal; greater stimulation may slow or arrest respiration. The superior laryngeal nerves, on account of their extreme sensibility, respond to a slighter stimulus than do the pneumogastrics. The superior and inferior laryngeal nerves constitute the inhibitory nerves of respiration.

The subordinate centers of respiration, several in number, are in the brain and spinal cord. The predominating respiratory centers are situated in the medulla. They are two in number and lie behind the superficial origin of the vagi, one on either side of the posterior apex of the calamus scriptorius, between the nuclei of the vagus and accessorius.⁴

The exciting fibers of respiration lie in the pulmonary branches of the vagus, in the optic, auditory, and cutaneous nerves; normally their action overcomes the action of the inhibitory nerves.

It is probable that mild stimulation of the respiratory centers in the medulla will give rise to even more rapid respiration than gentle stimulation of the afferent exciting nerves of respiration. Certainly destructive lesions of the respiratory centers will slow or arrest respiration.

In hysteria the whole sensorium is in a state of excitation, and especially the cutaneous, optic and auditory nerves which increase the frequency of the respirations. Besides in hysteria the power of inhibition is lessened, thus allowing the exciting nerves of respiration or of the heart to act at their own sweet will. We know that exhaustion of the exciting nerves of respiration or of the heart, or of the centers of respiration, or of the heart will cause slowing of respiration or of the heart's action, as the case may be.

May we not in this manner account for the loss of the relative frequency of respiration to the heart's action? It seems

⁴"Text-Book of Human Physiology," Landis and Sterling, Third Edition, p. 712.

to us, at times, that hysteria ignores all laws, while, in fact, the functions of the body are probably just as law-abiding in hysteria as they are in any other disease.

May one not account for the rapid respiration and the loss of the relative frequency of respiration and the heart's action in the case of the soldier, reported by Dr. S. Weir Mitchell in his lectures on nervous disease?⁵ In this case while the patient was at rest the number of respirations per minute was slightly less or equalled the frequency of the pulse, and on slight exercise both respiration and pulse were increased in frequency, but the respiration to a greater extent than that of the pulse; so that, the number of respirations per minute at one time was 125, the pulse was only 95. In this case the cutaneous surface of the right chest (lower) and the right lung were constantly irritated by nerve injuries that would naturally increase the frequency of respiration. Besides, the man had been suffering from a painful injury for a period of eight years, and had undoubtedly become hysterical. In consequence the power of inhibition was at a low ebb. The facial spasm that occurred several times daily would point to irritation of the pneumogastric nerves as these nerves are connected with facial nerves.

In the case that I have given at some length and detail in this paper, the subordinate centers of respiration, the cutaneous, optic and auditory nerves, those of the lungs, cord, and cerebrum were practically held in abeyance by the predominating centers of respiration in the medulla which were directly irritated by a lesion in the medulla. It is probable that the condition of the blood, which ordinarily affects the predominating centers of respiration to a greater or less extent, was overpowered by the lesion in the medulla.

If we were justified in assuming such a condition to have existed, and it seems to me that we are, we can readily see how an irritating lesion in the exciting centers of respiration would increase the number of respirations almost to an unlimited number. On the other hand, an irritating lesion in the inhibitory centers of respiration, might decrease the number

⁵See pp. 201 to 207.

of respirations per minute to 1 or 2, or arrest respiration entirely, as occurred on one or two occasions, when the patient seemed dead, and was revived at the end of two minutes by means of artificial respiration.

In hysterical subjects with exceedingly rapid respiration morphine, codeine, chloral and other drugs that have a depressing influence on the respiratory centers in the medulla, lessen the number of respirations per minute to one-half or one-fourth of what it was before the drug was administered. In the case of Mrs. B. codeine had no such influence on respiration when it was rapid.

In conclusion let me add: (1) That when we find a case of hysteria we perceive the veil that obscures or the cloak that hides the symptoms of organic disease, or gravely disordered functions, of some important organ.

(2) That respiration which is more rapid while the patient is asleep is strong if not positive evidence of organic disease of the brain in the region of the respiratory centers.

American Neurological Association

Discussion on the paper, by Dr. James J. Putnam and Dr. Edward R. Williams, entitled: "On Tumors Involving the Corpus Callosum." (See December, 1901, number of this Journal.)

DISCUSSION,

Dr. P. C. Knapp passed around a brain stating that the patient from whom it had been removed, before Dr. Knapp had seen him, had been trephined over the right parietal eminence to relieve pressure, a small trephine hole being made about one-half inch in diameter, and the lateral ventricle on this side had been tapped. The symptoms made the diagnosis doubtful as to whether the tumor were cerebellar or pre-frontal. He was trephined over the left cerebellum, nothing was found, and he died not long after with increasing coma. At the autopsy an enormous glioma, apparently having its origin in the right caudate nucleus was found. It had occluded the lateral ventricle so that the anterior portion of this ventricle was enormously dilated, and the brain substance covering the ventricle was extremely thin. On opening the brain, a clear, yellowish, translucent clot, the size of a small Bartlett pear, popped out from the interior of the lateral ventricle before the division was made of the tumor in the basal ganglia.

The growth apparently extended into the corpus callosum as well, although on that point Dr. Knapp was not quite positive.

Dr. B. Sachs believed it would be well to have discussion on a few points to bring out the result of collected experience in this matter. He was reminded of one point that was brought out forcibly by Dr. Putnam in his paper, and that is the surprising adaptability of the brain to the pressure from tumors. That seemed to him to be the case not only with some of the physical symptoms we are accustomed to associate with brain tumors, but also in part it is the case with regard to the mental symptoms. It is on this point he wished to say a word. He had under observation, and several gentlemen had seen the case with him, a rather unusual case of brain tumor that had now run a course of three and a half years. The variability in the mental symptoms had been most astounding. About three years ago, six months after the onset of the first symptoms, blindness developed and with

the onset of the blindness the girl passed into a condition that could properly be described as one of slight apathy with more or less silliness and almost dementia, so that for a year and a half the girl was more or less indifferent to surroundings, had occasional fancies, occasionally recalled things that happened long ago, but for all practical purposes the mental condition was nearly a blank. The tumor had evidently been growing, and yet a most surprising change in her mental condition had occurred, so that at this time the girl is practically as bright as before the first symptoms of brain tumor appeared. In this case Dr. Sachs was very much struck by the extreme variability of the mental symptoms, the recovery from a condition amounting almost to dementia, recovery such as he had not seen in any other case of brain tumor. The first symptoms in this case were those associated with the optic nerve. The girl had a loss of half vision of one field with a central scotoma of the other. These symptoms persisted six months, and although repeated examinations of the eyes were made by competent oculists, there was no optic neuritis or optic atrophy made out. After six months the first signs of optic neuritis appeared, and since that time the complete atrophy has supervened, and of course the blindness is a permanent one.

That led to the second point, whether in other cases of brain tumor the retinal fields have been carefully examined, and whether in the cases in which there is limited and irregular obscuration of the retinal fields, we must almost always suppose that the tumor is near the optic chiasm, or in other words, whether in cases of brain tumor with the tumor at some distance from the optic nerve, partial retinal anesthesias may occur.

The only other point Dr. Sachs insisted upon is that the operations for the relief of pressure in these cases should be encouraged. In the very case Dr. Sachs spoke of the girl was troubled for a number of months by most violent pains in the distribution of the second and third branches of the trigeminus. The tumor is now presenting on the surface over the parietal region and it was doubtful as to whether there was a metastatic growth near the trigeminus or whether the pain was the result of indirect pressure. At all events, a trephine opening was made a little to one side of the tumor as it presented in the parietal region, and the trigeminal pain disappeared very promptly after intracranial pressure had in this way been relieved. This somewhat fortunate result suggests the propriety of making trephine openings in the case of cerebral tumors even if there is no possibility of enucleating the

tumor or of reaching it at all. In this case an attempt was made to excise a part of the tumor for histological examination, but the hemorrhage was so great that the girl would unquestionably have died on the table, and knowing that the entire tumor could not possibly be enucleated, any further attempt at enucleation was abandoned.

Dr. P. C. Knapp said in regard to the tumors in the callosum he would speak of two cases involving the callosum—one a girl of fourteen who about four weeks before death had had symptoms of headache, nausea, vomiting, weakness, fever, loss of knee-jerk, tenderness of the neck, and some rigidity. She died at the end of four weeks with the symptoms of an ordinary meningitis. A meningitis of the base and spinal cord was found. At the autopsy, however, a firm tumor about the size of a walnut, was found on the corpus callosum, not, however, involving it deeply.

The second case was a boy of nine, who came to the hospital February 1, 1899, with a history of choreic movements in the right arm for two weeks, and unsteadiness of the right leg, also inability to hold his water and spasm of the right eyelid. It was at first glance suggestive of ordinary chorea, except that there was paresis of the left face. There was no real paralysis anywhere, the fundus was normal, and there was no special headache. Six weeks later he was brought to the hospital, having been attacked four days before with severe headache and vomiting. He was steadily growing worse, and became more and more stupid and unconscious. He moved the left side, the side opposite to the side which had shown the choreic movements, less than he did the right, but he was able to move it to some extent. He was in a critical condition, and was taken into the hospital and died the next day. The brain was found flattened, the ventricles dilated, a tumor 3 cm. in diameter with a hemorrhage in the center was found in the right caudate nucleus. The growth extended into the anterior and outward portion of the corpus callosum.

A third case under observation was suggestive of a growth somewhere on the median portion of the brain, possibly callosal from the fact that the boy in March, before he came under observation, had a sudden attack of paralysis of the right arm which lasted two or three weeks, and wholly disappeared. This was followed by headache and vomiting which continued for a month; then, while steadily improving, paralysis of the left arm developed, more marked in the hand and forearm. With that there was paresis of the left face on voluntary movement, although he could move the face

perfectly when he laughed. In addition to that there was optic neuritis and the persistence of headache with occasional vomiting, especially when rising to the erect position. These symptoms are still in existence.

Dr. J. H. Lloyd referred to one point with reference to the symptomatology of these tumors. He thought Dr. Putnam's paper presented evidence of remarkably little cortical irritation in these growths in the neighborhood of the corpus callosum, although there appeared to be very good reason why there should not be more. He was reminded of this in a case which he saw in consultation a few years ago, in which a tumor growing very nearly in the location described by Dr. Putnam, springing from the upper part of the middle of the corpus callosum and involving especially the cortex of the paracentral lobule, gave rise to a curious symptom which Dr. Lloyd had never seen before in brain tumors. He thought, however, it had been described by some writers as a "lock-spasm." This man had no epileptic attacks, and yet the affected arm—the symptoms were entirely unilateral—was involved in such a way that if the patient were asked to take your hand and hold it tightly, he could not let loose; his hand immediately fell into a condition of lock-spasm, so that the fingers had to be pulled off successively. This, of course, was indicative of cortical irritation, and yet it is hard to localize it exactly as the tumor occurred on the mesial aspect of the brain. The point was raised at the time as to the ability of the brain cortex to resist irritation where that is applied with a certain degree of regularity, or gradually, where the cortex is, as it were, trained to resistance. Dr. Lloyd thought at the time this consultation was held, they were making experiments in the University of Pennsylvania on dogs, in which it was proved that by slow and gradual increase of the irritation of the cortex epileptic convulsions were not excited. His idea in this case was that the cortex was gradually habituated to the irritation, and in that way it escaped what we might call epileptic involvement, but, on the other hand, this peculiar spasmoid action which he had described was present. He did not think it is hard to understand the involvement of the arm and leg in these cases, considering how pressure might very readily be made upon the internal capsule, but the absence of cortical irritation in some of these cases had occurred to him as being rather peculiar.

Dr. T. Diller spoke of one very practical point, a point which, perhaps, is more surgical than neurological, and yet which we ought to consider, and that is the question of doing these operations in two stages. Persistent hemorrhage in

operations on tumors is most uncommon. It is the custom of Mr. Victor Horsley, who has done so many of these operations, to do them in two stages, that is to say, do the trephining, cutting down to the dura, or, perhaps, opening the dura, and a few days or a week later making the attempt to remove the tumor. Dr. Diller was impressed with this a good deal, because very recently in a patient of his own, operated upon by Dr. Stewart, of Pittsburg, there was an enormous amount of hemorrhage, vicious and persistent, and he was quite sure that the patient would have died had the operation been persisted in. The wound was closed after packing with gauze, and a week later a partially successful effort to get the tumor out was made, that is to say, a portion of the tumor was removed.

One other point Dr. Diller mentioned, a point referred to by Dr. Sachs, and that is the propriety of doing a trephine operation simply for the relief of headaches. He entirely agreed with Dr. Sachs that such an operation is entirely justifiable. These headaches are sometimes of enormous severity, and may be almost completely relieved for a time; and there is another point to be borne in mind with regard to a simple trephining operation; when we do not encounter the tumor there is only a small danger of death, not nearly so great as where the tumor is found and removal attempted.

Dr. W. G. Spiller said that from three cases he had gotten the impression that tumors growing from the dura are liable to cause a great deal of hemorrhage, if an attempt is made to remove them; one, a case of his own was operated on two or three years ago, and as soon as the trephine opening was made and attempt was made to remove the bone flap, hemorrhage began and was exceedingly profuse. Another was a case of Dr. J. K. Mitchell, operated upon by Dr. Keen, and the third case Dr. Sinkler had reported at this meeting. In all three cases a tumor was found growing from the dura, two, endotheliomata; one, a spindle-cell sarcoma. Dr. Spiller wished to know whether in the experience of others the tumors which grow from the dura are more liable to cause a bloody operation than others. Perhaps Dr. Diller's tumor was one growing from the dura.

Another point is that these tumors growing from the dura will cause intense compression of the brain with relatively few symptoms. In his own case the compression of the brain was intense—in the motor area the cortex was compressed about one and a half inches below the level of the surrounding parts and yet only paresis of the limbs existed.

The point Dr. Sachs had mentioned, trephining for the

relief of symptoms, was very interesting. Dr. Spiller had a case with symptoms of cerebellar tumor, but no tumor was found at operation. Since that operation, about two years ago, the symptoms have largely disappeared. It was, perhaps, a case of internal hydrocephalus. Dr. Spiller wished to know whether in the experience of others it is advisable to operate on tumors of the cerebellum. He had seen several cases with symptoms of tumor of the cerebellum. It has seemed advisable to some neurologists not to recommend operation where the symptoms are those of tumor of the cerebellum.

Dr. C. K. Mills thought one point must be borne in mind, in regard to tumors of the callosum, namely, so far as he knew, no case of tumor of the callosum had been reported in which the growth did not involve, and in most cases extensively, the adjoining parts. He did not know, exactly, what is the result as regards this matter in the table prepared by Dr. Putnam and his colleague. From the very nature of the structure, and its size and position, this is likely to be the case; still he believed that something could be contributed to our knowledge of the functions of the callosum by reports of such cases. To illustrate what he meant: in the case of Dr. Sinkler, and also in the case of Dr. Sachs, and, perhaps, in one of the cases of Dr. Putnam, the symptoms seemed to point to a growth in some portion of the prefrontal region. In Dr. Sinkler's case it turned out that the lesion had involved the prefrontal on both sides. It is probable that tumors of the callosum do give mental symptoms of peculiar character, symptoms due to the dissociation of different cerebral activities, not necessarily of symmetrical portions of the brain which are correlated by means of the tracts which pass through the callosum. It is probable that they give a peculiar form of ataxia. In conclusion he called attention to the point that in every case referred to in this discussion the symptoms which were of importance were attributable mostly to the effect of the callosal tumor on other parts.

With regard to the case of Dr. Leszynsky, Dr. Mills said that it illustrates the fact that the tumor, beautifully localized and removed carefully from the motor region, was one which both before and after the operation was characterized by purely motor symptoms.

One word with regard to operation. He had seen a very large number of cases of operation on the brain, especially for brain tumor. His experience extended over many years (from about 1886), and he had been strongly impressed with the fact that both neurologists and surgeons do wrong at the

operating table. The surgeon should be more expeditious; lectures should not be delivered at this time; consultations should not be reheld over the operating table, the patient's life during all these procedures being in jeopardy. The growths could sometimes be removed in half the time or in much less time if the strictest attention were paid to nothing but the business in hand.

Dr. G. W. Jacoby emphasized the position Dr. Mills had taken. He thought it was an exceedingly practical one, and the more positively we give expression to that opinion in this Association, the better for our patients, and also for surgeons and neurologists. He believed too much time is lost at these operations, and that the question of minutes is life-saving, and without wishing to cast any imputation upon the surgeons, it is certain that they have grown in the habit of taking plenty of time in operations. In operations upon the brain there is a grave necessity for speed and for reasons entirely aside from that of profuse hemorrhage.

As to the remark Dr. Spiller made in reference to the amount of hemorrhage from dural tumors, Dr. Jacoby said he always expected to have a greater amount of hemorrhage in tumors than in brain operations for any other purpose, so that in all tumor operations he expected a large hemorrhage, but he expected to have a very much greater hemorrhage in dural tumors than in any other tumors, but whether that opinion is an opinion formed from a specific number of cases, or a general impression, he did not know.

Dr. F. W. Langdon said in respect to the question raised by Dr. Spiller as to whether it is advisable or not to operate in cerebellar tumors, he (Dr. Langdon) knew personally of four cases of cerebellar tumors which have recovered. Two in children were operated on by Victor Horsley. Dr. Langdon was present at one operation. Another case was kindly shown to him by Macewen, of Glasgow. Eleven days after the operation this patient, a middle-aged man, walked the length of the ward. This man and one of the children were blind and remained so after the operation. The fourth case occurred in Dr. Langdon's practice, and was operated on by Dr. E. W. Walker. The man had had one sharp attack of optic neuritis which had subsided. The symptoms of tumor had been preceded twelve years before by traumatism at the front of the head. A cerebellar cyst containing two ounces of bloody fluid, was evacuated, and the man is now walking around town, spastic in both legs, but has been able to do some light work, and *has good eyesight*. Dr. Langdon contended that if there is a chance of saving vision or a fraction

of vision, it is advisable to operate if it is only to relieve pressure. Here was a man who had had one attack of optic neuritis. In such a case delay is very dangerous. It seemed to Dr. Langdon we should take some chances, perhaps more in cerebellar tumors than almost any other, and give the patient the full benefit of any doubt.

Dr. J. Sailer called the attention of the Association to a couple of articles he had occasion to refer to recently, one by Jaboulay, who was obliged to operate on a very vascular tumor of the thyroid, and another by Kehr, who had three cases of cholemia requiring operation as result of gall-stones, in all of which there was excessive tendency to hemorrhage. The surgeons were naturally very much alarmed at the prospect of losing the patients on the table, and employed injections of gelatine for prophylactic purposes. It had occurred to Dr. Sailer that perhaps such injections of gelatine given before the operation, according to the method employed by Kehr and Jaboulay, might possibly be of benefit, and on some occasions might even save life.

Dr. W. Sinkler emphasized what Dr. Mills said in regard to the necessity for more expedition in the performance of these operations. He thought surgeons do not realize the importance of great promptness in completing an operation on the brain.

Dr. J. J. Putnam said he was glad these remarks had been made about operations. He had long been in the habit of recommending operative treatment in cases where recovery was hopeless, and the operation had been repeatedly done in two stages. He had several times used the lumbar puncture with, he thought, considerable benefit in the way of relief of pressure. In the case of one little girl in particular, the cerebro-spinal fluid spurted with force a number of inches into the air, and after a period during which she felt worse, there was a long period of very considerable relief. Dr. Putnam had sometimes wondered whether with the cerebellar tumors we really might not gain more by taking out a large piece of bone over the hemispheres, than by confining the operation to the neighborhood of the cerebellum, where it is necessary to confine oneself to such a small opening. He was glad Dr. Sailer spoke of the matter of the gelatine. The same idea had occurred to him, and he thought it might be a very fruitful one.

Dr. J. J. Putnam showed a patient in connection with the subject of muscular dystrophy, some of the features being so very striking, the enormous size of the deltoid compared with

the extremely small size of the upper arm. There was also a double facial paresis. Besides that it was interesting to note the extreme shallowness of the chest, antero-posteriorly, the ribs having all fallen in from failure of the inspiratory muscles. Then the ensuing paralysis was shown in a beautiful manner. The legs were weak and more or less atrophic, but did not show in a gross way anything striking. The patient had had this trouble since about twelve years old, and had kept at work and supported himself in spite of it. A year or two ago Dr. Putnam had seen a patient with enormous thighs, but absolutely atrophic in the legs below the knee, who was making records on the bicycle track, and also working as an expert watch-maker with the extremely feeble hands.

Dr. Putnam passed around two specimens of tumors of the corpus callosum to illustrate his paper.

A CASE OF MYELOMA OF THE SPINE WITH COMPRESSION OF THE CORD.*

JOHN JENKS THOMAS, A.M., M.D.

ABSTRACT.

A man thirty-nine years of age, was attacked by severe pain between the shoulders which lasted four or five days. After that he improved but there was more or less pain on movement; six weeks later he noticed a slight uncertainty in the use of the legs and numbness in the legs, and sensation of constriction about the abdomen. Eight weeks afterward there was slight diminution of the sense of touch and pain below the eighth rib, and very slight paresis of the legs without increase of the reflexes. The spine was freely movable and it was not tender, but there was a slight kyphosis in the upper dorsal region. The symptoms increased, and four months after the onset, and two months after he was first seen, he was confined to the bed with a paraplegia with increased reflexes, loss of the sense of temperature and pain, and diminution of that of touch to the fourth rib, and paralysis of the sphincters. The spine was not tender and motion was fair. There was a slight swelling on the left fifth rib. The patient was operated upon by Dr. Munro. A soft reddish tumor mass was found affecting and destroying the laminae and body of the fourth dorsal vertebra, and was removed as far as possible. The wound healed well and the patient regained completely strength and sensation in the legs and control of the bladder. The tumor mass was found to be composed of small round cells with large nuclei, very similar to plasma cells, except for the presence of a nucleolus. There was a very fine reticulum. There was about a quarter of one per cent. of albumose, and three-quarters of one per cent. of albumin in the urine, with tube-casts. The examination of the blood was negative except for a leucocytosis of twenty thousand, without relative change of the varieties of white corpuscles and the normal number of red corpuscles, with seventy per cent. of hemoglobin. The patient was given bone marrow and Coley's toxins. The operation was six months ago and there has been no return of the cord symptoms. Since then tender swellings of other ribs have appeared and quieted down; six weeks ago there was a return

*Read before the American Neurological Association, June, 1901.

of pain and tenderness in the back at the tenth dorsal spine, with pain passing about the trunk on pressing upon the head.

Myelomata are multiple tumors, affecting chiefly the spine, ribs, skull and pelvis, developing from the cells of the marrow, composed of cells resembling plasma cells. They usually produce albumosuria, though this is found in other lymphoid affections of the bones, as in pseudo-leukemia and leukemia. The most constant symptoms are pains in the back and chest, swellings on the ribs and deformities of the spine and thorax, sometimes accompanied by compression of the cord. There is no tendency to form metastases, but the disease frequently produces a severe anemia of the secondary type without megaloblasts in the blood, or any marked changes in the number or proportion of the white corpuscles.

The interesting features of the case aside from the rarity of the tumor were the relief of pressure on the cord by laminectomy, the presence of disassociation of disturbances of sensations of temperature, pain and touch from pressure upon the cord from without, and the apparent improvement of the condition in the bones from the use of bone marrow and Coley's toxin treatment.

DISCUSSION.

Dr. P. C. Knapp said that he had seen the case in consultation with Dr. Thomas. At that time the presence of the slowly-increasing paraplegia with spasticity and with disassociation of sensory disturbance, of which Dr. Thomas had spoken, were very strongly suggestive of a growth involving the cord itself. He was decidedly sceptical as to the benefit of any operation, thinking that they had to do more probably with a glioma of the central portion of the cord. Strümpell, in his latest edition, urges that the loss of temperature and pain senses with the retention of tactile sensibility is almost conclusive proof of central disturbance in the cord, although later on in the same book he admits that he has seen practically the syringomyelic symptom-complex in cases of spinal caries. This case from its clinical standpoint, certainly might be classed with those cases of caries where the pressure from without had apparently given rise to the syringomyelic symptoms.

Dr. Langdon, in connection with the liability mentioned by Dr. Knapp, of mistaking caries for syringomyelia, or having the two confused on account of the disassociation symptom, mentioned a case of apparently pure pachymeningitis spinalis externa, following gonorrhœa, and located cervically,

in which this dissociation symptom was also present. There was no evidence in any way in that case of caries, and the perfect recovery of the patient without impaired mobility rather negatived the supposition of caries. The syringomyelic dissociation symptom is not so strictly limited as was formerly thought.

Dr. J. J. Putnam spoke in favor of operations for tumors involving the spinal cord even through the complete removal of the tumor is impracticable and even though one might anticipate that such might be the case. In support of this favorable judgment he wished to refer to a case which he published some years ago in connection with an entirely successful one, where Dr. Warren removed a small fibroma. This case was one where a sarcoma was present in the cervical region. Dr. Elliot operated. There was extensive disease so that all the bones absolutely crumbled from the instrument used. They could be gouged out with a spoon with perfect ease, and the portion so removed amounted to a large portion of the visible parts of at least two cervical vertebræ. Everybody supposed that the patient would die, but, although at the time he was not only completely paralyzed in the limbs, but also largely as regards respiration, he gradually improved, and Dr. Putnam heard last autumn from him that he was able to walk down stairs and take his Thanksgiving dinner, although it is now some four years since the operation was done. Dr. Putnam spoke also of another case reported at the same time, where intense pain had been present for a long time, across the back and shoulders, due to an intraspinal new-growth. Here Dr. Warren laid open the spinal canal (as had been done some years before) allowing free drainage of fluid. The pain was at once relieved and has never returned, though the operation was done five or six years ago.

ACUTE ALCOHOLIC MULTIPLE NEURITIS WITH PECULIAR CHANGES IN THE GASSERION GANGLION.*

BY DR. CHARLES W. BURR AND DR. DANIEL J. McCARTHY.

ABSTRACT.

B. K., female, *act.* thirty-seven, was admitted to the Philadelphia Hospital suffering with acute alcoholic multiple neuritis. She developed shortly after admission incontinence of urine and feces and died five weeks after admission, having suffered for three weeks with severe respiratory disturbance without physical signs during life or pathological lesions post-mortem to account for it. At autopsy there was found widespread degeneration of both the central and peripheral nervous systems, of the pelvic and sacral plexuses, of the vagus and phrenic nerves, with hemorrhagic extravasations into the sheaths of the latter.

In the Gasserion ganglion besides the degeneration of the nervous fiber elements there was an extensive degeneration and at times complete degeneration of the ganglion cells; in some of the degenerated cells there was a calcareous infiltration completely filling up the capsule and having a peculiar crystalline character. There was also a proliferation of the nuclei of the stroma and an intense proliferation of the cells of the capsules of the ganglion cells, in some cases entirely filling up the capsules. The picture at first sight resembled the ganglion of a case of hydrophobia, but differed in the absence of any special congestion of the ganglion and the chronic character of the capsular cell proliferation as manifested in the presence of a more completely formed cell body. There was also a difference in the proliferation of the capsule cells outwardly into the stroma as well as into the cell body. This is not met with in hydrophobia. Even in the absence of any of these distinct changes the presence of degeneration in the peripheral nerves would be sufficient to distinguish these specimens from rabies, because demonstrable changes are never present in the peripheral nerves in rabies. The degeneration of the pelvic nerves explains the loss of bladder and rectal control, and are of importance in showing that not only these symptoms, but also the presence of amenorrhea and impotence occurring in the course of multiple

*Read before the American Neurological Association, June, 1901.

neuritis may be due to an involvement of the nerves having these functions under control.

If the assumption of Van Gehuchten and Nelis be correct, that the paralysis in rabies is due to the changes in the intervertebral ganglion, it would perhaps be worth while to consider these ganglion changes as contributory to the peripheral nerve changes in the production of the peripheral and cranial nerve palsies.

DISCUSSION.

Dr. Knapp said that in his experience in a very considerable number of cases of multiple neuritis, especially the alcoholic forms, paralysis of the bladder and rectum was extremely rare. In most of the cases it seemed to him either that there had been some involvement of the cord as a result of the poisoning or that there was merely the involuntary discharge from the bladder and rectum in consequence of the polyneuritic psychosis.

Dr. Joseph Collins asked Dr. Burr, in view of the changes which had been described in the spinal cord, if there were any anemia. He thought probably no blood count had been made; if that were so then whether or not there were an apparent anemia, because the changes described in the spinal cord were very similar to those reported as occurring with anemia.

Dr. H. T. Patrick asked the experience of the members as to the frequency of incontinence of urine and feces in so-called multiple neuritis. It seemed to him a more proper name for cases such as this would be poisoning of the motor elements, including their peripheral projections. He had had a case in which the rectum and bladder were both paralyzed, and when this occurred he was inclined to change his diagnosis from multiple neuritis, but the marked improvement caused him to accept his original diagnosis.

NEW YORK NEUROLOGICAL SOCIETY.

November 5, 1901.

The President, Dr. Joseph Collins, in the chair.

Portrait of Dr. E. C. Seguin.—Dr. J. Arthur Booth presented to the society a portrait of one of its founders, the late Dr. E. C. Seguin. The portrait was donated by Mrs. Seguin.

Case of Disseminated Sclerosis.—Dr. William M. Leszynsky presented a man whom he had first seen about two years ago. At that time the patient was thirty-two years of age, and had been well up to eighteen months previously. At that time he had suffered from occasional diplopia, but it had since almost disappeared. He had had occasionally a staggering gait and speech had become slow. There had also been some difficulty in swallowing. There had been no headache, tinnitus or vomiting, and no bladder symptoms. When first seen he had complained of being nervous and emotional. The examination showed him to be healthy in appearance. There was slight hesitancy in speech, and he was disposed to break into tears on slight provocation. There was slight horizontal nystagmus on efforts at fixation. The fundi and the visual fields were normal. His gait was slightly ataxic, and there was slight dragging of the right leg and a tendency to fall to that side. Both knee-jerks and Achilles reflexes were exaggerated. The examination of the urine was negative. On January 23, 1900, there was slight paresis in the left posterior thigh muscles and slight ataxia in the left upper extremity. In May it had been noted that he was not so emotional, but he dragged the left leg in walking, and the scapulae were prominent. In December it had been noted that the static ataxia was well marked. In March of the present year there was slight rigidity and dragging of the right leg in walking with tendency to fall to the right. At the present time the pupils are normal; there is slight oscillation of the eye-balls; slight ataxia of the right upper extremity; muscular power is perfect; the speech is slow and uncertain; there is a tendency to fall toward the left with a paraplegic gait. He stands with difficulty on either leg alone. A specimen of his handwriting was exhibited. During the past year there had been practically only an increase in the cerebellar incoördination and in the defect of speech. The man presented none of the stigmata of hysteria and was in no way neurasthenic. While he did not present all of the characteristics of disseminated sclerosis there were sufficient symptoms present, the speaker thought, to warrant this diagnosis.

Dr. B. Sachs thought there could be no doubt about the correctness of this diagnosis. It seemed to him a good example of the rather rare cerebellar form of multiple sclerosis.

Tumor of the Pons.—Dr. Joseph Collins presented some sections from a tumor of the pons. They had been taken from a woman, about forty years of age, who had gone to a dance on August 24, 1900, feeling quite well. After dancing a short time, the evening being very hot, she fell and remained unconscious for two hours. She said that her head felt heavy and her feet very light. The next morning on attempting to do housework she found that she was very dizzy and that the left side of the body did not seem to be under proper control. During the next three weeks there had been three transitory attacks of unconsciousness. There was in addition pronounced ataxia of the

extremities, but no paralysis. There was also constant vertigo with occasional vomiting, and a feeling of great weakness. She also suffered from a distressing diplopia. After an interval of about a week, during which the symptoms had abated, they had again returned. She had then exhibited inebrious speech and had suffered from nausea on the slightest movement. He had seen her about seven weeks after the original attack, and examination had revealed paralysis of the right abducens and of the right facial, with no reaction of degeneration; slight anesthesia of the upper two branches of the fifth nerve with no involvement of the lower branch; also hemiataxia and an exaggeration of the tendon jerks all over. There was not much headache at the time, and no optic neuritis. The woman died with symptoms of bulbar involvement. The lesion had been diagnosed as an acute softening in the left half of the pons. On autopsy a section through the pons revealed a fluid mass, but no evidence of a tumor or of an increase in the consistency of the pons. It had only been after hardening and cutting the pons that it had been found that there was an enormous angio-sarcoma involving the left side of the pons. It had pushed over the raphe and infiltrated the right half of the pons as well. The explanation of the lack of symptoms that one would expect with such a condition was that the growth had infiltrated between the motor and sensory fibers of the pons, but had failed to destroy them until a short time before the death of the patient. This was entirely at variance with what was usually observed in a growth of this character. Both acoustic nerves had escaped. At no time had there been any disturbance of vision, though careful tests had been made to determine this point.

Dr. M. Allen Starr said that last March he had seen in consultation with Dr. Biggs a patient who had presented rather a similar set of symptoms, namely, diplopia and paresis of several of the ocular muscles on both sides without a typical ophthalmoplegia externa. The patient also had anesthesia of one side of the face, and had the kind of speech often observed in bulbar palsy, together with a marked ataxia. There was no choked disc, so that the question had arisen as to whether the condition was one of softening or of the tumor. In the absence of headache and choked disc he had inclined to the diagnosis of softening, but the autopsy had shown an infiltrating glioma.

Clinical and Anatomical Report of a Case of Multiple Congenital Deformities.—Drs. B. Onuf and J. Fraenkel presented a joint paper, which was read by Dr. Fraenkel. The subject of the report was a girl who at the age of four years had been admitted to the Montefiore Home on September 22, 1895. The condition of the extremities had been noticed immediately after birth, and it was said that convulsions had occurred frequently during the first year. One year and a half before admission an osteotomy had been done at the hospital for clubfoot. During her stay in the Montefiore Home the girl had been frequently examined by various specialists. The child showed normal cerebration, but the emotions were displayed in an explosive manner. The chief features were: Motor disturbance of all four extremities; asymmetry of facial innervation, the face being drawn to the left; atrophy of the muscles of the forearm and fingers; drop-wrist on both sides; decided diminution in the motor power of forearms and hands; absence of the reflexes of the upper extremities; lower extremities decidedly tapering, and the right one the longer; decided diminution of the motor power of the flexors of the leg and extensors of the foot. On attempting to walk, standing erect, an intense lordosis developed, and there was a cock-step gait. The

clinical picture had remained practically unaltered up to the time of her death from diphtheria in June, 1897. The autopsy had been made by Dr. George R. Elliott. There was a subluxation of the hand and forearm forward. The palmaris longus muscle was absent. The ulnar half of the flexor sublimis digitorum was much reduced in volume, while the radial half was composed of fat only. The flexor profundus digitorum was also quite fatty. The flexor longus pollicis was converted into fat and the supinator longus into a band. The muscles of the extensor side of the forearm were all small but were not fatty. The thenar muscles were absent with the exception of the flexor brevis pollicis. There was a dislocation of the left hip upward and forward without any break in the capsule, and the head of the bone was situated forward of the natural acetabulum. The new acetabulum was made up of the thickened capsular ligament, but was otherwise apparently normal in shape. The pelvic and thigh muscles on the side of the dislocation were either fatty or atrophic. Microscopical examination of the psoas and entire muscle mass of the three adductors demonstrated: (1) A reduction in the volume; (2) an increase in the perimuscular fat tissue in some, and interfascicular fatty tissue in others at the expense of the muscular tissue proper; (3) increase of the perimuscular fat, chiefly in the adductor group of the left thigh; (4) increase of the fibrous connective interstitial tissue; (5) a vascular change, chiefly a thickening of the vessel walls; (6) disintegration of muscle fibers in some muscles; (7) preservation of a relatively large number of muscle-spindle-cells in the affected muscles; (8) changes in the intermuscular nerve bundles, chiefly a scarcity of the nerve fibers and thickening of the perineurium. No less than 44 spinal nerve roots were examined microscopically and changes were found not only in many anterior, but also in many posterior roots. The spinal cord on gross examination showed an unusually meager development of the cervical and lumbar enlargements. Microscopically there were noted: (1) A shrinkage of the nerve cells of the anterior horns in most levels of the spinal cord; (2) a shrinkage of the cells of Clarke's columns in certain levels; (3) vascular changes and cavities in the gray matter, chiefly in the cervical and dorsal regions; (4) the presence of apparently undeveloped cells at certain levels; (5) proliferation of the ependyma of the central canal in certain regions; (6) changes in the white matter, probably by artefacts. On gross examination the brain exhibited nothing peculiar. Changes of an atrophic order and apparently the presence of certain cells in an embryonic state were noted on microscopic examination. The cells most frequently affected were the larger pyramidal cells. No vascular changes were noted. To give some idea of the minuteness and exhaustiveness of the examination made of this case it should be noted that 5,500 sections were made and prepared for examination.

Dr. George R. Elliott presented the right forearm and the pelvis of this child, and demonstrated some of the muscular peculiarities noted in the report. The head and shaft of the dislocated bone, he said, were normal except that they were small from disuse. The dislocation was upward. The speaker emphasized the fact that this was not the form of dislocation known as a congenital dislocation of the hip; true congenital dislocation of the hip was almost invariably backward on the dorsum of the ilium. The large ligamentum teres seemed to be only a physiological hypertrophy. There was nothing in the drop-wrists to warrant them being called congenital dislocations; they were rather the result of the pareses. With reference to the

peripheral theory, Dr. Elliott said he could not quite understand how this would explain the picking out of portions of muscles and having them replaced by fat while others remained absolutely normal.

Dr. B. Sachs said that having seen the child during life he never doubted that the diagnosis lay between an intra-uterine poliomyelitis and a developmental defect. The paralytic conditions were secondary to the central change. In spite of the elaborate investigation that had been made the report was not wholly satisfying as to the character of the process. It did not seem to him that developmental defect of the gray matter of the cord could be excluded by the findings reported. It would have been interesting to follow up the anterior spinal artery and determine if this vessel were properly developed and had functionated properly. If it had not been normal, almost all of the changes in the gray matter described in the report could have been easily explained in that way. The case seemed to him to offer an example of a possible arrest of the development of the gray matter of the cord. He would like to know whether any unobjectionable case of intra-uterine poliomyelitis had been reported.

Dr. V. P. Gibney said that, so far as he knew, this was the first case of intra-uterine poliomyelitis that had been reported. In various discussions on clubfoot the subject of intra-uterine poliomyelitis had been pretty effectually disposed of. He agreed with Dr. Elliott that the dislocation in this case was not a true congenital dislocation of the hip.

Dr. Joseph Collins said that, judging from the report, he would not be satisfied to admit that the case was one of infantile poliomyelitis, because nothing had been said regarding the changes in the substance of the cells as evidence that these cells had undergone the parenchymatous changes which cells do suffer in poliomyelitis of every kind. He understood that the reason these changes had not been described was because the specimens had not been properly hardened for the Nissl stain. This was a great obstacle to the acceptance of the statement that the lesions were dependent upon a poliomyelitis. In poliomyelitis of every kind the external contour of the cord does not change, yet in the case reported shrinkage of the cord was prominent. Again, the cells were reported to be quite scarce, but the cells themselves were not materially disintegrated as should have been demonstrable in specimens so prepared. He found it impossible to imagine that this perceptible decrease of cells in size and shape in the motor region was purely secondary to the smallness of the cells in the cervical and lumbar regions. The changes in the muscles seemed to indicate very distinctly that they were secondary to central changes.

Dr. B. Onuf closed the discussion. He said that he thought that even if the anterior spinal artery had been badly developed it would not explain why the changes observed were so much more marked in some regions than in others. The intramuscular nerve bundles appeared degenerated. If there had been a developmental defect in the spinal cord one would look for absence of certain nerves and expect the rest to appear normal. In his opinion, the changes found in this case were fairly typical of poliomyelitis. The number of the cells appeared, on the whole, to be diminished. If this were a case of intrauterine poliomyelitis it was probable that comparatively few lesions would be found so long afterward as evidence of the process that had taken place. The changes of contour were probably explicable also on the ground that the process had lasted long. The distribution

of the cell changes was far from being uniform. He saw no reason why the cortical changes should not be looked upon as secondary in view of the fact that the process must have occurred very early in life. In cases of congenital porencephalus of the right occipital lobe marked atrophy of the optic nerve had been observed and reported. In a case of this kind it was not right to draw conclusions from one or two points, but only after a careful study of the whole picture.

The Finer Microscopical Structure of the Cortical Areas in Man and Some Animals.—Dr. M. G. Schlapp made some remarks on this subject. He said that he had been struck with the great differences in the descriptions of the cortex as given by different writers. The earlier authors described five or six layers in the occipital lobe, whereas more modern writers described eight or even nine layers. These discrepancies he would explain by the fact that different animals had been used for their observations. The higher one goes in the animal kingdom the more the philogenetic secondary center tends to replace the philogenetic primary center. The secondary center does not control all movement, however. Plates were exhibited to show the differences in different animals. The motor area is not developed in the lower animals, so that it can be distinguished from the rest of the cerebrum, but such an area can be observed in the dog and monkey. In the dog it is very near the frontal pole, whereas in the monkey it is much further back. In the monkey is found an eight-layer structure. The cortical sight center is very much developed in the monkey and in man. These differences in structure were demonstrated under the microscope. The granule cells are characteristic of a highly-developed cortex. Most of these cells have ascending axones or very short axones. They are the cells which receive the impulses. These cells are very much more developed in the sensory than in the motor areas. In the sight center is found the eight-layer type. The auditory center can be recognized, but is not so sharply distinguished as is the sight center.

CHICAGO NEUROLOGICAL SOCIETY.

October 24, 1901.

The President, Dr. Hugh T. Patrick in the chair.

Bitemporal Hemianopsia.—Dr. H. Gradle presented a patient with bitemporal hemianopsia and discussed the probable site and nature of the lesion causing the symptom.

Myasthenia Gravis.—Dr. H. T. Patrick presented a patient who was believed to have myasthenia gravis. He was a negro (not pure) twenty-five years of age, a cooper, and had been practically well until five years ago, when the present trouble began. He first noticed weakness of the arms when at his work, which weakness soon involved the legs and was accompanied by a dull ache or feeling of intense fatigue. He early noticed that a short rest would relieve the symptoms, which would then reappear after a few minutes of work. He gradually grew worse and had been able to do no work whatever for three years. The most striking symptom was a generalized myasthenic condition present to some extent at all times but enormously increased by a short period of activity. For instance, after a rest he could start off at a brisk rate and with almost a normal gait, but would rapidly weaken, and after walking about a block be compelled to come to a standstill. After a short rest he could again proceed as before. There was no particular involvement of limited groups of muscles as has been the rule in reported cases. The muscles about the shoulders and neck and the pelvo-femoral group seemed to be weaker than others, but the eye muscles, face muscles and muscles of mastication, although not vigorous, were not weaker than those of the extremities. The myasthenic electric reaction was present to a very limited degree, and the deep reflexes also showed some slight exhaustion after being rapidly elicited twenty or thirty times. As the blood, urine, feces and all the thoracic and abdominal organs were normal, and there were no conclusive evidences of organic involvement of the nervous system, the author was driven to a diagnosis of myasthenia gravis.

Lesions of the Conus Medullaris and Cauda Equina.—Dr. Bertram W. Sippy said that the symptoms produced by these lesions are well defined; but may be readily overlooked unless one is familiar with the clinical picture produced.

It is desirable both clinically and anatomically to limit the conus medullaris to the third, fourth and fifth sacral and coccygeal segments. Disease of those segments of the cord show characteristic sensory and motor disturbances. Sensation is impaired in an area symmetrically distributed involving the integument of the penis, scrotum, perineum, anus, inner aspect of the buttocks, and posterior surface of the thighs. The sensibility of the mucous membrane of the penis and rectum may also be dulled. If the lesion is sufficiently destructive, the muscular power of the bladder and rectum may be seriously impaired, sexual power may be lost and bed-sores may develop.

Lesions of certain fibers of the cauda equina may produce a clinical picture very similar to that of conus disease. It is extremely important to be able to recognize and differentiate the two conditions, since caudal disease may often be amenable to surgical treatment. Dr. Sippy reported nine cases in which one or the other of these structures was involved. The lesion included focal myelitis, tumor of the conus, spinal column injury, tumor of the vertebrae, and tuberculous

spondylitis. The symptoms of the conus lesions were observed in one case of tabes. Autopsy was held on the case and tumor of the conus was found.

The areas of anesthesia in those cases in which the adjacent cord was involved showed a striking similarity, and did not correspond accurately to the areas previously mapped out by others who have contributed to the subject of spinal localization. The general resemblance, however, was very close.

A few of the more important points given in differential diagnosis between diseases of the cauda equina and conus medullaris were: Except when due to trauma, disease of the cauda usually develops slowly, producing symptoms more or less characteristic of "root diseases." Pain upon movement is first felt in the lower extremities. Later the pain becomes spontaneous and persistent with exacerbations. Subsequently, anesthesia develops. If the lesion is uniform compression of the cauda, the cutaneous distribution of its central fibers are the first areas affected. Bladder and rectum symptoms may appear early, and are usually present before anesthesia becomes pronounced. Motor weakness is present in proportion to the pressure on the motor fibers and as a rule, does not appear until pain has become a prominent feature. The paralysis is characterized by loss of muscular tone. At onset, reflexes may be exaggerated; later, they are lost. Atrophies may develop. The electrical reactions may be altered. Decubitus has been noted. Disease of the conus is characterized by the sensory and motor symptoms previously described. In addition, the symptoms are likely to develop rapidly. Sensation may not be disturbed alike for all qualities. The pain and temperature sense is likely to be more seriously affected than touch sense. Pain is absent. Decubitus is more likely to occur than in caudal disease. Above all that which characterizes disease of the cauda, is pain. In a given case the absence of pain speaks directly for the conus lesion.

In the discussion which followed Dr. Patrick's paper, Dr. Lodor inquired of the mental condition of the patient, as to whether speech was slow and intellection sluggish. Dr. Sippy asked whether there were not present some symptoms of Addison's disease and whether the tension of the pulse had been noted. Dr. Goodkine called attention to the fact that no mention was made of the condition of the patient's voice.

In reply Dr. Patrick stated that while the man's voice was not strong and speech was slow, intellection seemed normal, and that there was no bronzing of the skin discoverable, and the pulse was soft and normal.

In discussing Dr. Sippy's paper, Dr. Kuh said that in all acute cases of segmental cord lesions low down, the diagnosis was made from symptoms as given at the outset, and was very usually wrong, as the symptoms at first indicated a larger lesion than subsequently appeared. In making a differential diagnosis between conus and caudal lesions it is important to remember two symptoms, pain and disturbances of motility. In conus lesions there is less pain and more disturbance of motility, while in lesions of the cauda equina, the reverse is true.

Dr. Barker asked Dr. Sippy whether in his different cases, the overlapping of the terminal cutaneous nerves could be demonstrated. Dr. Sippy replied that while each area of skin contained fibers from the separate segments of the cord, the overlapping was in the roots and not in the segments. He also stated that disturbances of pain and temperature were more sharply outlined than touch.

Dr. Patrick cited two cases where the anesthesia was found on the back of the leg in a continuous strip.

Periscope.

Brain.

1901, Vol. 24, Autumn.

1. Certain Mental Changes that Accompany Visceral Disease. HENRY HEAD.
2. Contribution to the Study of the Cortical Sensory Areas. G. L. WALTON-W. F. PAUL.
3. A Case of Chronic Internal Pachymeningitis of the Spinal Cord. J. MICHEL CLARKE.
4. Degeneration in Hemiplegia; With Special Reference to a Ventro-Lateral Pyramidal Tract, the Accessory Fillet and Pick's Bundle. STANLEY BARNES.
5. On the Study of True Tumors of the Optic Nerve. PROF. A. PICK.
6. A Case of Cerebral and Cerebellar Tumors with Well-defined Tract Degenerations. F. THIELE.

1. *Certain Mental Changes that Accompany Visceral Disease.*—Henry Head analyzes the various mental changes accompanying visceral diseases, as based on investigations of patients suffering from pulmonary, cardiac or abdominal disease, embracing observations made in the Victoria Park Hospital, and the London Hospital since 1893. The underlying etiology of such changes is to be looked for either (1) In a disturbed activity of the heart altering the circulation of the brain, or changing the character of the blood supplying it; as an example of this we find the delirium that accompanies a failing heart or profound vascular degeneration; or (2) when an organ is attacked which in health produces a substance necessary for the normal metabolic activity of the tissue; thus the destruction of the thyroid gland causes the peculiar hebetude of myxedema, due to the absence of some constituent manufactured by that gland. (3) When an excreting organ is attacked, leading to retention of toxic agencies in the blood, as we find in kidney and liver troubles. (4) The resistance of the nervous system may be so lowered by visceral disease that a poison, such as alcohol, for instance, may produce mental changes different from those that will be produced by the same poison under different conditions. (5) Finally, visceral disease may, by lowering the resistance of the body to disease, call out dormant tendencies manifesting themselves as active mental disease. Besides, the reflected pains of visceral diseases are accompanied by changes in consciousness. The various changes that may accompany visceral disease fall into the following groups: (1) Hallucinations: (a) of vision; (b) of hearing; (c) of smell. (2) Moods; (a) sense of ill-being; (b) exaltation. (3) Suspicion.

As regards hallucinations of vision the commonest form is that of a figure, usually draped, and not clothed, "wrapped in a shawl," as the patients declare, "wrapped in a sheet," the limbs are usually not visible. Sometimes the hallucination consists of a face only; in one case the patient saw a hand and arm come round the door of the ward that stood open flush with her bed. The hallucinations are in all cases white, black or gray, never colored or even normally tinted.

ed. The face is white, the lips colorless, thus giving rise to the figure or face of a corpse. In this he finds the difference between the hallucinations of the sane to those of the insane, for in the latter the hallucinations of vision either resemble some normal subject or are highly colored, although the other kind of hallucinations may also be present. The figure or face is always single; it is usually stationary, unaccompanied by any sound, not appearing during the bright light of the day, but usually when the patient awakes from sleep. The patients are at first frightened, but become gradually accustomed to the phenomena, and insist they won't "be fooled"; at times they are accompanied by depression, and considered as a bad omen of some approaching misfortune.

The hallucinations of hearing are also of a simple type; they are never articulate voices, thus differing from the commonest form of hallucination of hearing in the insane. They assume the form of tapping, of ringing bells, low whistling, treading of footsteps, or breathing and inarticulate whispering. The intensity of these hallucinations is very variable; they also occur usually at night, and when the patient is surrounded by perfect quietude, for external noise tends to prevent the appearance of the hallucinations. The feeling—tone—of the patient caused by these hallucinations is usually unpleasant, and the latter are quite persistent. The investigation of hallucinations of smell is very difficult, as you cannot easily prove that a smell of which the patient complains has no external cause. These hallucinations are invariably unpleasant, and may be divided into the following groups: (a) Sulphuretted hydrogen group ("drains," "rotten fish," "eggs," or "cheese"); (b) burning group ("burning bricks," "burning rags"); (c) "earthy smell," or "smell of grass"; (d) smell of gas; and (e) fecal (only one case). Like other hallucinations these are prevented by strong external scents. They frequently appear in relation to food, thus causing refusal of food by the patient.

(2) Moods.—(a) Sense of ill-being. The change of mood in these patients comes in paroxysms, without reason, the patient seeking solitude, away from public gatherings, which become repulsive to him; he usually has an intense desire to weep; when spoken to he completely breaks down, nor can he tolerate music or anything that usually tends to cheer up a healthy man when in despair. This is accompanied by a vague idea of impending ill. He visualizes his home through dark colors. Still this mood is seldom followed by an idea of suicide; on the contrary the patient usually spurns the idea of self-destruction. (b) Exaltation. Quite to the contrary is the feeling of exaltation, a feeling of returning physical strength; the illusion is, however, rapidly dispelled by the failure to accomplish feats of strength not commensurate with the real strength.

(3) Suspicion. The mood of depression frequently repeated or lasting too long merges finally into a condition of suspicion, which, however, is more of an impulse than a formed delusion, for the patient at all times recognizes that it has no basis of truth; this suspicion is also easily dispelled by appropriate explanations.

In analyzing the causes that underlie the above-described phenomena, the author ascribes the most prominent rôle to the presence of reflected visceral pains accompanied by superficial tenderness. (An attached chart of 154 cases, embracing those of aortic disease, aneurism and dilated aorta, mitral disease, combined aortic and mitral etc., as well as of tubercular phthisis, fibrosis of lungs, etc., is well worthy of the closest study at this juncture). Thus the condition of depression is not an intellectual sense induced by

thought and worry to the patient's mind, but an alteration of the feeling-tone in the direction of ill-being; and associated with a sense that it lies outside reason; as he describes it, it is an obsession dominating his rational life and producing feelings that he cannot describe. He has a feeling that he has somehow lost control of his mental processes but that his reasoning powers are still intact. This feeling of ill-being is not an emotion proper, for it is not accompanied by projection, as in anger, hate, love and the like; and in the absence of a suitable English psychological term he proposes to call this state "mood", to indicate a state of mind in which consciousness is dominated by feeling-tone, but where the resulting state is not projected. To produce such a mood the reflected visceral pains must not only be of considerable intensity or duration, but great frequency and involve a number of segmental areas. Then some segmental areas—as those of the abdomen—are more likely to be associated with this sense of ill-being, while pain and tenderness over the upper thoracic area must be relatively severer and of longer duration before it becomes associated with depression. Instances of cardiac pulmonary trouble are here brought forward to substantiate this assertion. The feeling of exaltation spoken of before is not a delusion of grandeur, but a belief in the returned youth and strength, thus becoming the exact converse of that sense of ill-being which made up the depressed mood. This comes as a reaction after diminution of pain. The duration of this state is usually short, and it must not be confounded with the well-known "spes phthisica," a more permanent mental condition of a different origin and nature, for this hopefulness, this condition of rescence, is based simply on ignorance of the increasing gravity of the signs of the disease, and is easily dispelled by a short stay in the hospital. As distinct from this exaltation there occur attacks of excitement, when the patients burst out into paroxysms of anger or uproarious excitement, as instances in cases of aortic disease. It would thus seem that the exalted sense of well-being to which persons with visceral disease are liable, may arise from many different causes. (a) It may be the direct contrast to a mood of ill-being induced by visceral pain. (b) Those who suffer from visceral pain are liable to an accentuation of the normal waves of well- and ill-being that apparently stand in connection with the feeling-tone connected with visceral activity. (c) The apparent exaltation may be due to ignorance on the part of the patient of the gravity of his condition. To this group belong many of the cases of so-called "spes phthisica." (d) Patients suffering from disease of the aortic valves are liable to attacks of excitement apparently of vascular origin. The state of suspicion usually takes its origin from the state of ill-being or depression; with them there is also associated a sense of physical worthlessness, but no feeling of moral unworthiness, and thus it fundamentally differs from the commonest form of suspicion to the insane, who always thinks that those around him believe he has committed some act either against religion, law or social custom; again the patient with suspicion born out of a sense of ill-being of visceral origin is without difficulty convinced of the suspicion being without foundation, nor is he quite sure of the suspicion; a simple denial satisfies him. In its causeless or inconsequent onset, and to the sense of loss of control by which it is accompanied, it closely resembles the state of ill-being out of which it springs. Hallucinations mostly appear in cases of depression, except those of vision, which are not always contemporaneous with an attack of depression. (Reference is here made to an article by

the author in "Brain," 1894, p. 436, touching upon the anatomical causes that underlie the reflected pain in the head and tenderness of the scalp in diseases of the organs of the chest and the abdomen.)

In attempting to bring out the causes that determine the special kinds of hallucinations—of sound, sight and smell—and taking as an example headache of the reflected visceral type, he propounds several theoretical considerations: the presence of pain of the reflected type and tenderness over the temporal area, whatever its origin, will tend to produce an hallucination of smell. Widespread scalp tenderness unaccompanied by marked local headache, is unlikely to be associated with the occurrence of an hallucination. The occurrence of hallucinations of vision and hearing on the position of the headache or the area of the scalp tenderness.

(3) Changes in attention and memory. Memory for the remote past is usually not affected except in those extreme cases where the patients become slightly demented. If a man has a special facility based on some particular development of memory, this aptitude is the first to be weakened. Then memory may also be weakened in other directions, patient may forget things seen or heard—a more serious condition, but there is no loss of due appreciation of time and of locality as in the insane. A profound loss of attention has also been observed in many suffering from diseases of heart and lungs. These changes cannot be ascribed to reflected pain only, but with this is usually associated acute wasting and fever. Pain sensations do not cause a diminution in the power of attention only by the fact that they enter into consciousness as pain sensations, but by changes in feeling-tone with which that pain is associated. In visceral disease it is not only from lack of attention that memory is diminished, but from the lowered vitality of the nervous system produced by continuous fever or profound wasting. Besides, states in which feeling-tone or motion occupy consciousness are extremely poor in memory images. In a similar manner few can reproduce the sensation of a toothache, although every object in the dentist's room can still be pictured as clearly as on the day the tooth was drawn. The article concludes with an extensive appendix of cases illustrative of the various mental changes accompanying visceral diseases.

2. *Contribution to Study of Cortical Sensory Areas.*—In this article, which is rather too technical to be summarized, the authors present "a view in line with that of Bastian, in that it accords a sensory function to both the Rolandic and to the parietal regions, and recognizes the gyrus fornicatus as a possible sensory seat."

3. *A Case of Chronic Internal Pachymeningitis of the Spinal Cord.*—J. M. Carke presents an interesting case of extensive internal pachymeningitis, absolutely limited to the spinal cord, without any involvement of the intracranial membranes. The patient, a man of twenty-five, a shepherd, free from syphilis or gonorrhea, was suddenly taken sick eighteen months previous to admission to the hospital, with severe pains and loss of power in the legs, extending—the pains—into the ankles, knee-joints, wrists, elbows and shoulders; pains worse at night and after exertion; occasionally incontinence of urine; some tremor in the limbs, and some fibrillary twitching of the muscles; unable to stand, and when assisted just shuffled along a few steps. Speech and answer slow, but appearance and well-being good; over ventral area rough systolic murmur. Cranial nerves unaffected; arms weak but not paralyzed. Legs weak, muscles somewhat wasted, toes extended, dorsiflexion of foot feeble, flexion weaker than extension. Some lordosis and stiffness in movement of lower dorsal lumbar por-

tion of spine. Abdominal and cremasteric reflexes absent, plantar present; knee-jerks exaggerated, ankle clonus absent; elbow- and wrist-jerks present. Retention of urine with overflow, incontinence. Severe girdle pains. Later on wasting of the muscles of leg and bedsores. Hyperesthesia at the level of the umbilicus, over front of thighs and legs, and over calves. Anesthesia over dorsum of the feet and outer aspect of legs; also, in patches, over the trunk. The temperature sense defective or lost in places over the lower extremities, also some deficiency in tactile sensations. In a week or so loss of power in both lower extremities which were rigidly contracted and flexed at all joints, further wasting of the muscles with no reaction to faradic current. Pains and girdle sensation very severe. Then tingling and numbness in the right arm, entire loss of power; the other arm involved. The patient during the last week became absolutely helpless, unable to move himself; legs rigid, wasted, drawn up, right arm flaccid, left arm very feeble, turning head and neck very feebly. Incontinence of urine and feces. Abdomen distended, tympanitic from paralysis of abdominal muscles. Rapid formation of bedsores over every bony point on which there was the least pressure; sacrum, trochanters, belly, great toes, etc. Death from septicemia.

Post-mortem: skull normal, cranial dura healthy, pia-arachnoid a little opaque, cerebro-spinal fluid in excess, cerebral hemispheres small but healthy, but ventricle much dilated, ependyma somewhat thickened. Cerebellum and pons healthy. But in the cord remarkable changes were found. In its whole length it was enclosed in a tough fibrous sheath, consisting of thickened dura mater and within this a thick layer of looser connective tissue; all this firmly adherent to the cord. The thickening lessened gradually at the upper part of the cervical region and in the dorsal and lumbar. The cord itself appeared small and compressed. Sections of the cord showed under the microscope that the mass consisted of the greatly thickened dura, and of closely applied layers of dense fibrous tissue. Next to the cord was a very vascular layer, looser and less dense in texture; beneath this the pia, thickened and with vessels injected. Both roots of nerves were compressed, and largely destroyed. The posterior root ganglia atrophied, the ganglia cells destroyed. In the cord itself there was a diffuse degeneration of quite irregular distribution due to increase of interstitial neuroglial tissue and atrophy of nerve fibers. In the gray matter there was a diminution in the number of fine, large medullated fibers normally present. There was a marked general increase of the interstitial tissue both in the gray and in the white matter. The blood vessels also showed changes in that the walls were markedly thickened, the chief change being in the inner coat with marked endarteritis.

Although syphilis presents similar changes, it usually affects a limited portion of the cord, while here the whole of the cord was implicated. The changes themselves seemed to be secondary, due to compression. There was no evidence of a primary myelitis. The negative history as regards syphilis and the absence of other syphilitic lesions in the body speak against the syphilitic origin of the disease. In the course of the malady it is worthy to note that the pains and weakness in the legs came on rather gradually, remaining almost stationary after reaching a certain stage, but two months before death these symptoms grew rapidly worse, and the subsequent progress of the illness was very rapid. The extraordinary formation of bedsores was a remarkable feature of the disease.

4. *Degenerations in hemiplegia.*—This is a study based on the autopsies of five cases of hemiplegia and aphasia with the following conclusions: (1) In man the pyramid frequently gives off a ventro-lateral tract. This tract may arise in the pons, medulla, or first cervical segment in the cord; it lies in the region of Helweg's "Dreikanternbalin," and is best marked in the first two cervical segments; occasionally it can be traced down to the lumbo-sacral region. (2) It confirms in the main, the researches of Hoche on the "accessory fillet" in man, *i.e.*, that it leaves the pyramid in the upper pontine region, descends in the middle fillet and supplies certain of the cranial motor muscles. (3) "Pick's bundle" is probably an ascending tract which arises from the crossed pyramid at the decussation, and forms at least part of the pyramidal supply of the nucleus ambiguus; it is fairly frequently degenerated in cases of hemiplegia, and is not of such rare occurrence as Pick supposed.

5. *On the study of true tumors of the optic nerve.*—At the autopsy of a case that presented during life a complexity of eye symptoms (especially pronounced atrophy of both optic nerves) in combination with mental symptoms, such as hallucinations, restlessness, etc., due to an injury five weeks before to the left temporal region sustained by striking violently against a broad wooden peg in a stable,—the optic nerves were found markedly gray in color, although not diminished in size; microscopically beside numerous round cells, peculiarly-shaped bodies of varying size furnished with long processes; the sheath of the optic nerve considerably thickened. There were on one hand masses of round cells, and on the other typical or angular cells of myxoma with often extraordinarily-long spirally-twisted processes thus marking the tumor as a myxo-sarcoma. The special points in the case are summarized thus: Tumor of the optic nerve was not diagnosed, the symptoms not being clear enough, and exophthalmos (which, according to Braunschweig, is "never" absent) not being present. The early development of visual defects is a factor of importance in the diagnosis of such cases, even where palpation gives no evidence of a tumor and exophthalmia has not developed. The etiological impetus as well as the rapid course of the disease are also matters for consideration. The author is compelled to accept the origin of the tumor at first in the chiasma, thence as spreading in both nerves and into the tract. As regards the mental symptoms, the psychoses are essentially based on hallucinations of sight, probably due to the pressure of the growth. The epileptic attacks that occurred two days previous to and on the day of patient's death, are ascribed to a disturbance of the state of circulation in the dural sheath of the optic nerves compressed from within outwards.

6. *A case of cerebral and cerebellar tumors.*—At the autopsy of this case (a child, six years old, who fell, striking the occiput against a curb stone, some five weeks previous; this was followed by "fits," and later on by complete blindness, "cerebellar" gait, double optic neuritis, etc.) tuberculous tumors were found in the left parietal lobe, in the superior temporal convolution and in the left lateral lobe of the cerebellum. Microscopically there were degenerations of fine collateral fibers in the corona radiata of the parietal lobe of the left hemisphere, in the corpus callosum at the level of the middle of the third ventricle, the fasciculus subcallosus in the left hemisphere, the temporo-thalamic fibers, the pyramidal tracts (the lower limb area), in the accessory fillet; extensive degenerative processes were also found in the optic tracts, the posterior commissure, the posterior

longitudinal bundle. In the spinal cord in addition to the pyramidal degeneration both columns of Burdach were affected. In the cerebellum both flocculi were attacked, the uvulva, the inferior vermis as well as the fleece fibers around the dentate nuclei of the cerebellum. Both superior cerebellar peduncles were degenerated, especially on the left side.

The following conclusions are drawn from the case: (1) With destructive lesion of the cortex of the Rolandic area (a) the association fibers of the homolateral hemisphere undergo extensive degeneration; (b) the fibers of the corpus callosum connecting the two areas are of medium size and do not turn down into the capsule of the opposite hemisphere; (c) the pyramidal fibers give off collaterals to their course through the corona radiata; (d) the fibers from the upper third of the Rolandic area run through about the junction of the middle posterior third of the hinder limb of the internal capsule and for the most part to the outer side of the crista of the peduncle, and maintain their relative position in passing through the pons; (2) No fibers are given off by the optic tract to the infundibular region or to the corpus Luysii, in fact no fibers leave the tract before it reaches the level of the lower border of external geniculate body. This is contrary to the views of Bechterew, Stilling and Kölliker; (3) although there was widespread destruction to the left lobe of the cerebellum there was no descending cerebellar degeneration to the spinal cord. This is contrary to the opinion of several authorities, e.g., Marchi and Biedl; but inasmuch as Deiters' nucleus was intact the present observation supports the views of Risien Russell, and Ferrier and Turner; (4) the accessory fillet is a descending tract contrary to the opinion of Bechterew, Schlesinger, and in support of the view of Redlich and Hoche. The "accessory fillet" may be simply fibers of the pyramidal tract leaving to gain cranial nerve nuclei.

ROVINSKY.

Neurologisches Centralblatt.

(1902, Vol. 21, January 1, No. 1.)

1. Initial Symptoms of Paranoia. A. PICK.
2. Dietetic Treatment of Epilepsy. D. SCHAEFER.
3. Studies in Voltaisation. A. ZANIETOWSKI.

1. *Initial Symptoms of Paranoia.*—This is merely a short controversial article calling into question a few of the conclusions reached by Head in his article on "Certain mental changes that accompany visceral diseases," an abstract of which appears in this issue of the JOURNAL.

2. *Dietary Treatment of Epilepsy.*—A short note in favor of a strict dietetic treatment of epilepsy paying particular attention to a diet which is free from chlorine combinations as first laid down by Toussieu and Richet. Brief summaries of the results are given in three cases. Balint's diet, consisting of 1½ liters of milk, 40-50 gms. of fresh butter, three eggs, 300-400 gms. of bread, was employed. The attacks steadily diminished in number and the psychical condition was markedly improved. A return to the ordinary diet was accompanied by a return of the epileptic attacks.

3. *Studies in Electrophysiology.*—The author here gives a short summary of his results obtained by the use of the Voltmeter instead of the Galvanometer as a reliable test for electrical excitability. Such an instrument he believes to be better for the measuring of viability of nerve and muscle action than the use of the constant current and

the needle of the galvanometer. The notes are concerned mainly with technical questions of the different forms of apparatus used. The results are distinctly new, however.

JELLIFFE.

The Alienist and Neurologist.

(1902, Vol. 23, No. 1, Jan.)

1. The Acquisition of Nervous Health. F. SAVARY PEARCE.
2. Manual Stigmata of Degeneration. J. E. COURTNEY.
3. Sexual Inversion among Primitive Races. C. G. SELIGMANN.
4. Juvenile Female Delinquents. E. S. TALBOT.
5. Clinical Observations on a New Hypnotic. H. SCHOENFELD.
6. Medical Aspects of the Czolgosz Case. C. H. HUGHES.
7. L. F. Czolgosz. A. DRÄHMS.
8. Consciousness and the Neural Structure. J. G. KIERNAN.
9. Science and Christian Science. P. PAQUIN.

1. *Acquisition of Nervous Health.*—A few cases are here reported bearing on what the author is pleased to call the stress of modern civilization as causative factors in the production of nervous diseases. He concludes with a few truisms that many mental diseases have perverted functions as a basis for development and advises short vacations, trips on the water, canoeing, horseback riding, etc., as aids to overcome general nervousness which may precede serious breakdown.

2. *Manual Stigmata of Degeneration.*—A short note on certain irregularities in the structures of the hand. Such enumerated are stub-thumb, or abbreviation and clubbing of the last phalanx of the thumb; spur-little finger or marked shortening of the little finger with or without deflection downward of the last phalanx and infantile nails, the nails being short, small, thin and disposed to flare and curl at the edges.

3. *Sexual Inversion.*—Among primitive races little is known of the details of these practices. It is known that homo-sexual practices are present in most of the American Indians; sodomy was found among the Aztec and Maya natives. Among the Aleuts of Alaska, boys of girlish appearance are brought up as girls and decorated as women. Other isolated instances are written, but little new is to be found recorded.

4. *Juvenile Female Delinquents.*—This continues a previous article giving the histories of a few female delinquents, with remarks on the cause of the development of crime among females. A complete analysis will be given at the termination of the article.

5. *A New Hypnotic.*—The author reports the histories of a series of cases in which hedonal was employed to advantage. It is commonly given in doses of from 15-45 grains in mild cases of agrypnia. If there is pain associated with insomnia its action is not reliable and must be combined with a mild analgesic. The sleep obtained is uninterrupted, quiet and dreamless, and lasts for several hours. The observations here quoted were made in von Ziemssen's clinic at Munich, and represent a large variety of cases of insomnia. No serious by-effects or after effects were noted.

6. *The Czolgosz Case.*—This article is a criticism of what the author terms the "too hasty vengeance" of the people on the "degraded assassin," and also an inquiry into the causes that surrounded the criminal which induced him to commit the homicide. Egoism, unbounded and morbid, are ascribed to Czolgosz and sequestration of cranks is advocated.

7. *Bertillon System of Identification*.—A copy of the Bertillon card of Czolgosz with a few personal generalizations.

8. *Consciousness and Neural Action*.—A short essay touching on some material sides of this philosophic problem.

9. *Science and Christian Science*.—A vigorous exposé, now somewhat threadbare of the inconsistencies and money-making schemes of this latest development of pseudo-religious mania. CLARK.

Journal de Neurologie.

(1901, Vol. 6, Nos. 24, 25, Dec. 5, Dec. 20.)

1. Phenomenon of Charles Bell in Peripheral Facial Palsy. BOUCHAUD.

2. Traumatic Paraplegia. M. DE BUCK.

3. Contribution to the Localization of the Cervical Cord. PARHON AND GOLDSTEIN.

4. Case of Labyrinthine Vertigo Cured by Electricity. LIBOTTE.

1. *Bell's Palsy*.—In 1897 Bordier and Frenkel described in facial palsies of the peripheral type, a movement upward and slightly outward of the eyeball, on the affected side on attempting to close the eyelids. (Described by Charles Bell in 1823.) This was observed only when the reactions of degeneration were complete, absent when partial. Hence they assumed it possessed a certain prognostic value, as well as diagnostic, being absent in the cerebral type. It occurs normally, if while effort is made to close the lids, the upper is held open with the thumb, and according to Bordier in sleep, nausea, and syncope. Dr. Bouchaud's patient was a woman aged twenty-six years, with atrophy of the right lower extremity due to acute poliomyelitis in early life. She incurred a complete paralysis of the left side of the face from exposure to cold. Two months previously she had suffered with pain and tinnitus in the left ear, with slight deafness, which symptoms had disappeared before the advent of the paralysis. Six months later Bell's symptom was first sought. Instead of the eye-ball rolling upward and outward, it took its course downward and inward, more rarely downward and a little outward, the cornea disappearing beneath the lower lid. This peculiarity was present in the right eye as well. It persisted even after the disappearance of the palsy and the onset of the secondary contractions. Bordier attributes Bell's sign to a labyrinthian irritation. Campos ranks it with the consensual movements. Bouchaud offers no explanation for this reversal of the well-known phenomenon. It is interesting to note that the same deviation was noted in a case of advanced locomotor ataxia with no evidences of facial weakness.

2. *Traumatic Paraplegia*.—A field laborer, while lifting a heavy spadeful of earth, felt a sudden crack in the right hip with immediate pain and paralysis in the right leg. He could walk only by the use of a crutch and cane. The leg is held flexed, the foot is rotated outwards. The entire right leg became atrophic and flaccid, weak movements may be carried out. There was slight diminution of the pain and temperature sense of the entire right leg and in the sciatic distribution of the left. Sphincters were normal. There was pain and tenderness in the region of the right buttock and Poupart's ligament on the same side. Above the latter a tumor was palpable (extirpation later showed enlarged lymphatic glands). An X-ray of the pelvis was negative. Hip-joint was normal. An electrical examination showed a diminution in the response to both currents applied directly and indirectly on the right side and limited to the sciatic distribution on the

left. The knee-jerk was abolished on the left side and was exaggerated on the right side. Both Achilles jerks were absent. The man had a dorsal kyphoscoliosis the result of Pott's disease in his seventeenth year. Dr. De Buck thought that an injury to the right sacro-iliac joint implicating the lumbo-sacral plexus was the most rational diagnosis notwithstanding the bilateral involvement of the extremities.

3. *Contribution to the Localization of the Cervical Cord.*—The results, obtained by the authors, are based on a careful study of the anatomy of the cell groupings in the eight cervical and the first dorsal segments from a normal cord. A case of infiltrating carcinoma of the anterior thorax, axilla and arm, producing a lesion probably equivalent to a resection of the brachial plexus. Animal experiments were also employed. The authors felt justified in formulating the following conclusions. (1) The brachial plexus begins at the upper portion of the 4th cervical segment and terminates at the lower portion of the 1st dorsal segment; (2) the antero-internal group of cells does not enter into the formation of the plexus which supplies the muscles of the vertebral column; (3) the phrenic originates above the 4th cervical segment (confirming Dumond, who places it between the 3rd and 4th cervical); (4) the spinal accessory originates in the antero-external group in the 1st and 2nd cervical segments. Its longitudinal extent could not be determined; (5) the supra- and infraspinatus muscles are represented by the intermediary group in the 4th cervical segment; (6) the pectoralis major by the intermediate group in the 5th cervical; (7) the anterior brachial region by the posterior groupings in the 5th cervical; (8) the serratus magnus by the longitudinal extent could not be determined; (9) the supra—and infra-7th cervical probably supplies the pectoralis minor; (10) the triceps by the posterior groupings in the 7th cervical and the intermediate group in the 8th; (11) the postero-external group in the 8th cervical innervates the posterior surface of the forearm and the short adductor of the thumb; (12) the postero-internal group innervates the anterior region of the forearm; (13) lower in the 8th cervical the posterior and internal groups supply the muscles of the hand; (14) in the 1st dorsal the small lateral group innervates the hand muscles—the more anterior assist in supplying the anterior surface of forearm.

4. *Case of Labyrinthine Vertigo cured by Electricity.*—Patient, a woman aged twenty-nine years suffered from headaches and vertigo for several years. The vertigo increased in severity, became constant and was accompanied by a staggering gait, nausea and vomiting. There was constant tinnitus in the right ear with slight deafness. Acuity of vision was normal but any visual effort was accompanied by great fatigue (ascribed to disorder of accommodation—analogous to the double vision sometimes observed under similar conditions). Curettage of the pharynx, politerization, tympanic massage and finally incision of the membrana tympani had been practised without avail. The "laigrette statique" produced at first an amelioration and finally a cessation of symptoms which had existed three and one half years.

J. R. HUNT.

MISCELLANY.

A FORM OF HEREDITARY CEREBELLAR ATAXIA. Thomas and Roux (Revue de Medicine, No. 9, September, 1901, p. 762).

The patient who forms the subject of this paper belongs to a family which, for two successive generations, have produced five individuals afflicted with the same disease. In all of them, the first symptoms have appeared at about the same time, and have followed the

same sequence and have produced the same clinical picture. Clinical summary: woman, forty-seven years old; no previous illness of consequence; at the age of thirty-five the disease first made its appearance with symptoms of pain in the lower left extremity. Locomotion became difficult, spontaneous tremor in the muscles of the lower extremities, and Romberg symptom were present. Patellar reflex retained. Heaviness in movements of upper extremities, muscular sense normal. Immobile facies; speech slow and tremulous. Violent pains in lumbar region. Anesthesia for cold and heat, hyperesthesia to contact and pain in lower extremities. Visual acuity diminished. Pupils normal, nystagmus. Acuity of hearing lessened. Vomiting and nausea after eating. Towards the end of life, legs were immobile, owing to contractions of tendons. Death from pulmonary tuberculosis. Microscopic examination of the central nervous system showed the following: (1) Relative smallness of the cerebro-spinal axis. The cord is especially diminutive, as are the posterior and anterior nerve roots. Great increase of the small nerve fibers which enter into them; (2) partial atrophy of the large cells in the anterior horn. Atrophy and disappearance of the small cells at the base of the anterior horn. Atrophy of Clarke's column. Disappearance of great numbers of the reflex collaterals and of the network of the myelinated fibers of the grey matter of the cord; (3) partial degeneration of the posterior column, localized, firstly, in the column of Burdach, then spreading more and more internally in the dorsal region. In the cervical region it is limited exclusively to the posterior portion of the column of Goll. The disappearance at the level of the nucleus of Goll's column. Partial degeneration of the whole antero-lateral tract, especially marked in the dorsal region. Total degeneration of Gowers' tract. Absence of the direct cerebellar tract, indicated by lack of degeneration in the dorsal region with slight trace in the cervical region; (4) degeneration of the lateral tract of the bulb and atrophy of the corresponding nucleus. Degeneration of the restiform body in its central part, while the peripheral portion is normal. The authors, after a consideration of the subject from the points of view of anatomy, physiology, and pathology, and of classification, conclude as follows: There exists a group of family and hereditary affections in the evolution of which cerebellar symptoms play an important part. The anatomical substratum is to be found in a lesion situated sometimes in the cerebellum, and sometimes in the cerebellar tracts. These cases have in common a general smallness of the neuroaxis. Outside of some clinical and anatomical peculiarities due to the participation of other systems, they differ from each other either by the extent or by the location of the lesion, or by its nature. If, from the anatomical point of view, the most extreme types are not comparable, there are others which have many points of contact between them and which form an intermediary series. SCHWAB.

THE SPINAL CORD OF CHILDREN AND SYRINGOMYELIA. Julius Zuppert (Wien. klin. Woch., p. 949. No. 41, 1901).

The object of this study, as stated by the author, is to ascertain whether it is possible, by the examination of large numbers of spinal cords in children, to discover findings which have any relation to the cavity formation in the spinal cords in adults. The concrete question which the author set before him to solve was the discovery of the presence of a hydromyelia in its relation to the peculiarity of the epithelium of the central canal as well as the glia overgrowth, and in addition to follow further Schultze's work on the spinal cord hem-

orrhages which take place during the act of labor. Two hundred spinal cords of embryos, infants and children in the first two years of life form the material upon which the study is based. The cords were stained chiefly by the Marchi method and by Nissl, Weigert, etc. The changes found could be divided into two classes: First, intrapartum spinal cord hemorrhages; second, anomalies of the central canal and its vicinity. The results of the study of this material are as follows: One case of intrapartum spinal cord hemorrhage, the location of which was characteristic of the location of the lesions in syringomyelia. Quite frequently an enlargement of the central canal was found. In one cord from a child nineteen months old, in addition to the enlarged central canal, was a glia overgrowth. In the cord of an anacephalous monster, anomalies of the central canal, as well as other pathological cord appearances, could be demonstrated.

SCHWAB.

NEPHROLITHIASIS AND SPINAL CORD DISEASES. Schlesinger (Wiener klin. Rund. No. 41, p. 769, 1901).

Recently the relation of stone in the kidney and diseases of the spinal cord have attracted considerable attention. The hypothesis has been advanced that in some cases spinal cord affections cause the formation of a kidney stone. The statistics of Maschka in this respect are of interest: In 78 cases of nephrolithiasis, he found spinal cord lesions in three. These statistics of Maschka are based upon 15,000 autopsies. In three cases of syringomyelia, Schlesinger found kidney calculus. In two of these, the stones were phosphates, and in the third, urates. Two had cystitis and pyelitis, and the third was free from kidney complications. In another case of encephalomyelitis a kidney calculus was found. From a consideration of these cases, as well as from those found in literature, the author comes to the following conclusions: Kidney calculi are found relatively frequently in traumatic spinal cord affections, and in syringomyelia, much less often in spinal cord tumors. Symptoms of nephrolithiasis follow those of the spinal cord lesions months and years afterwards. Kidney calculi, found in spinal cord affections, are mostly phosphates, much more rarely urates. Cysto-pyelitis can be absent in spite of the kidney stone and spinal cord affection, but is present most frequently in phosphatic stone. The spinal cord affection appears to act favorably upon the formation of a calculus, either directly or indirectly. Perhaps a certain predisposition, especially in the case of uratic calculi, is essential.

SCHWAB.

THE PATHOLOGY AND TREATMENT OF RHEUMATOID ARTHRITIS. P. W. Latham (The Lancet, Vol. clx., 1901, p. 998).

The aim of this interesting contribution is to uphold the dystrophic or neural theory of rheumatoid arthritis. The author feels that although it is said to be without the support of definite evidence of morbid change in the spinal nerve cells or in the nerves of the joint, he believes this criticism to be based on insufficient pathological observation and feels that both clinically and therapeutically he has found cordial support for the dystrophic hypothesis. As regards the clinical side of his argument he points to the distinctly neurotic character of the antecedents and accompaniments of the arthritic trouble. Neuralgias, often mistaken for rheumatism, of the legs, along the spine or across the loins, are frequent forerunners of arthritis rheumatica. Centrally, worry, anxiety, shock—seem to him in some cases to have originated the disease. The most prominent accompaniment of the arthritic mischief is seen in the muscular atro-

phy which in many cases intervenes and which develops far too rapidly to be due to mere disuse. Whether this atrophy be primary or secondary, is it reasonable to suppose that it can exist without accompanying degenerative changes in the cord, and is it not fair—from the clinician's view, to assume these changes to be similar to those found in anterior polio-myelitis?

Pathology points to the probable fact that the trophic nerves of the bones and joints are found in the mixed nerve trunk and that they issue along with the motor fibers from the anterior cornua, where they are, like the muscular trophic fibers, connected with a group of large nerve cells. Some connection must exist between these and the brain. Clinically the author has often seen arthritis induced by trauma of the cord or of the peripheral nerves which could not, except by the history of the case, be distinguished from the rheumatoid form. This fact has been known for years. In 1864 Drs. Weir Mitchell, Moorhouse and Keen published their observations on the subject and so far back as 1831, Dr. S. W. Mitchell reported cases where arthritic symptoms supervened upon injury to the spinal cord. These cases were successfully treated by applying a dozen cups and abstracting as many ounces of blood from the neighborhood of the cervical or lumbar enlargements. If the cupping did not afford relief, blisters were applied to the same areas.

Upon the foregoing data it seems not unreasonable to assume that the joint troubles in rheumatoid arthritis are due to spinal congestion or chronic myelitis, chiefly affecting the ganglion cells of the anterior horns but extending also, when the disease is associated with "glossy skin" to the ganglion cells of the posterior horns.

The author cites a number of cases in which blisters, 6 inches by $2\frac{1}{2}$ inches, were applied to either side of the spine, the blistered surface being kept open for a week with saline ointment, daily local massage; arsenic and nitrohydrochloric acid, formed the basis of the treatment and in which marked improvement was the rule. In conclusion he states that in the early stages of rheumatoid arthritis continuous spinal counter irritation is of great value. After the bones have enlarged and the articular cartilages have been destroyed it is of little use. Nevertheless, in these chronic cases where exacerbations of pain and swelling occur, it may be used, often, with distinct and lasting benefit.

JELLIFFE.

PATHOLOGY OF HYSTERIA. F. D. Savill (*Lancet*, 1901, 2, July 20, No. 4,064).

Savill says that the sudden onset of hysterical paralysis (or other malady) suggests a vascular lesion, and the anatomic change is in fact a vascular one—a sudden dilation or contraction of the arterioles of a given area, accompanied in some instances by exudation, or disturbance of nutrition in that part of the nervous system the function of which is deranged. Just as subjects of the hysterical diathesis are liable to attacks of flushing or pallor of the skin, so also, it is believed, are they liable to attacks of flushing and pallor of various parts of the interior of the body. In the absence of experimental proof of the truth of this proposition, Savill directs attention to the clinical features of hysterical syncope, to the evidences of the hysterical diathesis, and to the causes of hysteria as tending to confirm his contentions. He states that the essential lesion in hysterical syncope is to be sought in the abdominal sympathetic, and that this lesion, whatever it may be, gives rise to a rapid dilation of the splanchnic arteries and consequently to cerebral anemia. The hyster-

ical diathesis is defined as a peculiar condition of the nervous system, inherent in the individual and for the most part inherited, consisting in its psychical aspect of a want of self-control and emotional instability, and in its physical aspect of a tendency throughout life to the development of various sensory, motor, visceral, or neurovascular disturbances unconnected with any definite organic lesion discoverable by our present means of investigation. With regard to the pathology of the hysterogenetic phenomenon, it is believed that pressure upon the inguinal region results in the production of the aura, etc., by producing dilation of the splanchnic area and consequent cerebral anemia—through the medium of the iliohypogastric nerve, the centripetal depressor nerve of the abdominal sympathetic. There may, apparently, be other depressor nerves in patients who present other hysterogenetic zones.

SMITH.

UEBER SENSIBILITÄTSSTÖRUNGEN DER HAUT BEI MAGENKRANKHEITEN). Haenel (Muenchener medicinische Wochenschrift, Jan. 1, 1901).

Head's conclusions are confirmed by the author, who finds that the dorsal areas 7-9 are most commonly affected in diseases of the stomach. At times, however, hyperalgesia may extend beyond these zones. Hyperalgesia of the arm, especially on the inner surface of the arm and over the deltoid muscle, does not negative disease of the stomach. The two points sensitive to pressure described by Boas, one to the left and the other to the right of the twelfth dorsal vertebra, are found to exactly coincide with the two maxima of Head, while the sensitive point in the epigastrium is probably also a reflex hyperalgesia rather than due to direct pressure. The writer gives brief histories and the localization of the hyperalgesia in five cases of disease of the stomach. The areas of pain coincide in the main with the deductions of Head.

JELLIFFE.

Book Reviews.

THE MENTAL FUNCTIONS OF THE BRAIN. By Bernard Hollander, M.D. G. P. Putnam's Sons, New York and London.

This is a work of some 500 pages devoted to a study by means of clinical histories of the localization of certain functions of the brain, more particularly bearing on the study of morbid mental phenomena.

In many ways it is unique. The author sets himself the task of clearing up the mystery of the fundamental psychical functions and their brain localization. In thirteen chapters he gives an apotheosis of the work of Gall and some of his followers, and thus clearly sets forth his position as a defender of phrenology brought up to date. His successive chapters bear on "The Present State of Mental Science," "The Pathology of Melancholia, Irascible Insanity and Mania Furiosa, Mania of Suspicion and Persecution, Localization of Special Memories, Material for Future Localization, the Cerebellum, Relation of Brain and Skull, History of Gall's Doctrine and Phrenology, Opposition to Phrenology, Comte's Positive Psychology, based on Gall's Doctrine, Testimony of the Truth and Usefulness of Phrenology by eminent medical men, and conclusion.

It would be impossible here to analyze the author's work in this place. There is in it much food for thought for one who will lay aside for the purposes any opinion of one's own and take the statements as they are presented, but further than this it seems impossible to go.

The work is one of that distinctly modern and interesting psychological type of book in which good material is wasted by lack of logic and want of perspective. There are many truths in the chapters which are utilized to bolster up, in many instances very sane conclusions, but mostly we believe for glittering and premature generalizations.

The modern scholar well versed in these lines can well afford to pass an idle hour in the reading of this work. To the uninitiated many of the statements will pass as whole truths, whereas they show true gold here and there, sometimes panning out rich in useful facts.

The author has conferred a service in bringing together so many clinical histories, although it is impossible without referring to all the literature cited to ascertain if we do not here find an example of scientific casuistry of the most reprehensible type. Special pleading, however, is a universal fault even among the best of logicians and if the author has built up an imposing array of evidence by suppressing unconformable facts, he but follows the example of many another.

One discordant note of a very disagreeable nature is manifest throughout. The author sees fit to slur modern scientific inquiry, building up hypothetical standards and then demolishing the same, by pointing out individual errors and making them the mouthpiece of scientists at large. This thoroughly unscientific and tiresome attitude tends to nullify all the good that a tolerant reader is disposed to find.

JELLIFFE.

NUOVO CONTRIBUTO CASUISTICO ALL PSICOPATOLOGIA FORENSE. NOTE DI ANTROPOLOGIA CRIMINALE. Per il Dr. G. Sanna Salvaris. Cagliari-Sassari.

The author here contributes a series of short notes on some fourteen cases of medico-legal interest from the alienist view-point. In brief they deal with legal questions arising from arrest of mental development, 3 cases; melancholia, 2 cases; paranoia, 5 cases; alcoholic dementia, 1 case; epileptic insanity, 2 cases; and three miscellaneous cases representing homicide and parricide. JELLIFFE.

LE TRAITEMENT DES NÉVRALGIES ET NÉVRITES. Par A. F. Plicque. Ancien interne lauriat des Hôpitaux, Ancien Chef du Laboratoire d'Electro-therapie de Lariboisiere, etc. J. Bailliere et Fils., Paris.

This small volume is another of this excellent series of "Les actualités médicales," published by the well-known firm of Bailliere et Fils.

Large numbers of contributions have been put forward both from the surgical and medical standpoints, bearing on the treatment of the neuralgias, and yet at the present time they present numerous points of difficulty in the practical management of many cases. The present volume, though short, is a practical résumé of the most recent studies and is deserving of special commendation. ELY.

HANDBUCH DER GERICHTLICHEN PSYCHIATRIE. Unter Mitwirkung von Prof. Dr. Aschaffenburg, Privat docent Dr. E. Schultze, Prof. Dr. Wollenberg, herausgegeben, von Prof. Dr. A. Hoche 8vo, 732 pages. August Hirschwald, Berlin, 1901. 20 marks.

A handbook of legal psychiatry which includes within its covers so much material of vital interest to the alienist, cannot fail to be appreciated in this country where the laws may be different, but the principles enunciated are the same.

With an increasing complexity of social relations the legal status of the mentally-afflicted citizen becomes more and more involved and as the general average of intelligence rises there is made apparent an increase in the interest in and stress laid upon matters which ten years ago were not thought about.

For the American alienist the first half of the book will prove of more interest. In it the authors present a series of clinical descriptions of diseased mental types that are characteristic of the forms which involve legal complications, and especial stress is laid upon detailed modes of examination for those symptoms which bear directly on the medico-legal sides of the problem.

For the jurist the complete exposition and the Prussian legal forms will be invaluable although largely incomprehensible for the non-legally trained physician.

A special portion of the volume deals with the clinical types of insanity. This by A. Hoche is to be commended most heartily. The work is a masterly one and deserves a wide recognition.

SMITH.

News and Notes.

A PRIZE of four hundred dollars is offered by Dr. J. B. Mattison, medical director of the Brooklyn Home for Narcotic Inebriates, for the best paper on the subject, "Does the Habitual Subdermic Use of Morphia Cause Organic Disease—If so, What?" The contest is to be open for two years from December 1, 1901, to any physician. The paper may be submitted in any language. The award is to be determined by a committee, composed of Dr. T. D. Crothers, of Hartford, Conn., editor of the *Journal of Inebriety*, chairman; Dr. J. M. Van Cott, professor of pathology, Long Island College Hospital, Brooklyn, and Dr. Wharton Sinkler, neurologist to the State Asylum for Chronic Insane, Philadelphia. All papers are to be in the hands of the chairman by or before December 1, 1903, and are to become the property of the American Association for the Study and Care of Inebriety, and to be published in such journals as the committee may select.

DR. ALBERT E. BROWNREIGG, for three years assistant physician at the New Hampshire State Hospital for the Insane, has accepted an appointment as resident physician at the Highland Spring Sanatorium, at Nashua, New Hampshire.

DR. M. B. WEYMAN, of New York, has been appointed first assistant physician of Manhattan State Hospital.

FRANK A. RUF, President of the Antikamnia Chemical Co., has been elected Vice-President of the Fourth National Bank, of St. Louis, Mo.

DR. CHARLES K. MILLS has been elected Clinical Professor of Nervous Diseases; Dr. William G. Spiller, Assistant Clinical Professor of Nervous Diseases and Assistant Professor of Neuro-pathology; and Dr. Charles W. Burr, Professor of Mental Diseases, in the University of Pennsylvania.

DR. ALFRED WIENER has been appointed adjunct neurologist to the Montefiore Home.

DR. J. ELVIN COURTNEY has resigned the position of Chief of Staff of Hudson River State Hospital at Poughkeepsie, N. Y., and removed to Denver, Colo.

DR. SMITH ELY JELLIFFE has been appointed Visiting Neurologist to the City Hospital.

DR. RALPH F. SOMMERKAMP has resigned the position of assistant physician in the Insane Department of the Philadelphia Hospital.

IT IS SAID that morphine is used extensively in the town of Juana Diaz, Puerto Rico. It is estimated by the insular board of health that out of the 2,500 inhabitants 1,000 are victims of this habit.

DR. WM. B. PRITCHARD, of New York, was appointed Consulting Neurologist to the S. R. Smith Infirmary, Staten Island, New York, by the trustees of that institution at the November meeting.

THE ONLY BIBLIOGRAPHY of *American Neurology and Psychiatry* published is to be found in this JOURNAL on advertising pages

xviii and xx. It already consists of nearly 900 references. Cut these references out, past them on cards, and keep a complete index of what is being written in America on neurology and psychiatry.

AT A MEETING of the Board of Managers of Craig Colony, held at Sonyea, N. Y., on October 8, 1901, the report of the Prize Committee, consisting of Drs. G. W. Jacoby, Pearce Bailey and Ira Van Gieson, was approved, and the prize of \$200 was awarded to Professor Carlo Ceni, of Pavia, Italy. The successful essay, the title of which is "Serotherapy in Epilepsy," will shortly be published in the *Medical News*. As elsewhere announced, the prize is again offered for universal competition.

THE PLANS for the county insane hospital at Weyauwega, West Virginia, have been approved, and the contracts let. The building will cost about \$80,000 and will accommodate 125 patients.

DR. J. ARTHUR BOOTH presented to the New York Neurological Society, a portrait of one of the founders of the society, the late Dr. E. C. Seguin. The portrait was donated by Mrs. Seguin.

THE REORGANIZATION of the Pathological Institute of the New York State Hospitals for the insane, made necessary by the resignation of the former director, Dr. Ira van Gieson, early last summer, has been proceeding slowly, but it is now announced that Dr. Adolf Meyer, of the State Hospital and Clark University, Worcester, Mass., has been appointed by the lunacy commission to fill the position of director of the institute.

It is further announced that the plan of work of the institute will be organised on a basis which should be satisfactory to the medical profession, to the physicians in the State Asylums for the insane, to the various universities of the State, to scientists in general, and to the taxpayers. Dr. Meyer is to be left free to select his assistants in the various departments of the laboratory work, but will be assisted in this selection by the advisory board.

DR. GEORGE A. ZELLAR, of Peoria, Ill., who is now in the Philippines, where he holds a commission as surgeon in the army, has been elected superintendent of the asylum for the incurable insane at Bartonville, Ill., by the trustees of the institution. He succeeds Dr. F. W. Winslow, who died recently.

GOVERNOR ODELL has appointed Mr. Daniel M. Lockwood the legal member of the State Commission in Lunacy, to fill the vacancy caused on July 1 last, by the resignation of William Church Osborne, of New York City.

JONATHAN HUTCHINSON, F.R.S., General Secretary of the New Sydenham Society, has requested Messrs. P. Blakiston's Son & Co. of Philadelphia, the American agents of the Society, to announce the publication of an "Atlas of Clinical Medicine, Surgery and Pathology," selected and arranged with the design to afford, in as complete a manner as possible, aids to diagnosis in all departments of practice. It is proposed to complete the work in five years, in fasciculi form, eight to ten plates issued every three months in connection with the regular publications of the Society. The New Sydenham Society was established in 1858, with the object of publishing essays, monographs and translations of works which could not be otherwise issued. The list of publications numbers upwards of 170 volumes of the greatest scientific value. An effort is now being made to increase the membership, in order to extend its work.

DR. J. T. ESKRIDGE, a prominent specialist in nervous and mental disease, a member of the American Neurological Association, and a life-long friend of this JOURNAL, died in Denver, January 16, at the age of fifty-four years. Dr. Eskridge was forced to settle in Colorado because of pulmonary tuberculosis, and he there built up a large practice. He died of tuberculosis and chronic nephritis.

NEW YORK'S CHARITIES BILL is having many vicissitudes. Notwithstanding the fact that it seems to be one of Governor Odell's pet schemes, so much opposition has been aroused that there are hopes in most quarters that it will be defeated. The scheme appears to be a political one, whereby all the purchasing and executive power can be controlled at Albany by a few appointees of the Governor. The objective point is to do away with the voluntary Local Board of Managers.

OPPOSITION TO THE CHARITIES BILL on the part of the New York Neurological Society was evidenced by the action of its council, by which body a resolution of condemnation of the bill was passed. It is understood that Dr. Joseph Collins and Dr. E. D. Fisher attended the public hearing at Albany and argued against the bill.

THE
Journal
OF
Nervous and Mental Disease.

Original Articles.

HEREDITARY CEREBELLAR ATAXIA, WITH REPORT OF
A CASE.*

BY HUGH T. PATRICK, M.D.,
OF CHICAGO.

PROFESSOR OF NEUROLOGY, CHICAGO POLICLINIC; CLINICAL PROFESSOR
OF NERVOUS DISEASES, NORTHWESTERN UNIVERSITY MEDICAL SCHOOL.

In 1893 Marie¹ grouped together two cases reported by Fraser², three by Nonne³, eight by Sanger Brown⁴, and three by Klippel and Durante⁵, and gave to them the name *héredo-ataxie cérébelleuse*. It was a bold thing to do! Deliberately to make an addition to the nosology of nervous diseases without having had an opportunity to personally study a single example of the new malady, savored somewhat of genius—or of effrontery. Just which of these two elements dominated the situation remains to be seen, for after more than eight years of deliberation by many neurologists and the report of a number of cases in various countries, the assumption of Marie remains neither substantiated nor fully refuted. It is still *sub judice*.

The obstacles in the way of establishing hereditary cerebellar ataxia as a distinct disease are several: first, a fundamental barrier, diversity of symptoms in the original basic

*Read before the Chicago Neurological Society, November 21, 1901.

sixteen cases; second, absence of uniformity of subsequent cases reported as examples of this disease; third, lack of careful post-mortem examinations in cases which were, clinically, sufficiently typical; and, fourth, variation in post-mortem findings. To these may now be added, fifth, several autopsies which strongly tend to controvert Marie's thesis.

To establish the new type it is first necessary to segregate the cases from those of accidental family type due to lues⁶, parturition injury and the like, from hereditary quadriplegia with incoördination⁷, from Friedreich's disease and from certain cases of indeterminate nature, not yet classified, affecting cerebrum and cerebellum or cerebrum, cerebellum and cord; and then the cases so separated must be shown to be sufficiently similar in clinical manifestations and structural changes to allow of amalgamation into a pathological solidarity. In the attempt to fulfil the first of these conditions the greatest difficulty arises in drawing the line between the proposed group and Friedreich's ataxia, and in selecting cases from the heterogeneous mass of more complicated diseases characterized clinically by progressive incoördination with preserved or exaggerated reflexes. Owing principally to lack of material and as yet inadequate knowledge, but to some extent also to loose methods, neither condition can be said to have been met.

A succinct statement of Marie's claim with brief mention of the basal and some of the later reported cases will elucidate the present status of the question. Although none of the basal cases had been reported as Friedreich's ataxia, Marie devotes a large part of his paper to a differentiation of his new type from this disease. The prominent features of Friedreich's ataxia, it will be remembered, are family type, inception before fourteenth or sixteenth year, incoördination in station and progression, rather of the staggering than the spinal ataxic sort and often not increased by closure of the eyes; movement of the upper extremities characterized by disorder resembling intention tremor, but at the same time oscillatory and choreiform; speech slow, uncertain or explosive; loss of deep reflexes; integrity of pupillary reactions,

ocular muscles and optic nerve; presence of nystagmus, deformity of the feet and spinal curvature; unimportance of sensory and mental symptoms.

In contrast, Marie predicates of his group, hereditary as well as family type, inception after twenty, exaggeration or at least presence of the deep reflexes, defective pupillary reactions, involvement of the optic nerve and ocular muscles, and absence of deformity. In mode of onset and progress, character of motor disorder, frequent absence of Romberg's sign, presence of nystagmoid jerking, defect of speech, unimportance of mental symptoms and lack of prominence of sensory troubles, the two affections are so nearly identical as not to admit of definite distinction. Marie further laid great stress on the totally different pathological anatomy of the two diseases, affirming for his type atrophy of the cerebellum as the structural basis, instead of the combined sclerosis known to be present in the ataxia of Friedreich. Indeed, the qualification "*cérébelleuse*" was added to the title purely on this assumption.

Let us see what the basal cases show. Fraser reported his as "Defect of Cerebellum Occurring in a Brother and Sister." The disease began in infancy or early childhood, and was characterized by incoordination, ocular paralysis, slow hesitating speech and, in one case, by slow pupils and vertigo on assuming the supine position. Nothing is said as to reflexes.

Nonne made no attempt to classify his cases (three brothers), calling the affection simply "A singular disease of the central nervous system." Symptoms began at ten, fourteen and in middle life respectively, and the patients exhibited incoordination, preserved deep reflexes, eye symptoms, incoordinate speech and some mental weakness.

Brown reported his cases as "Hereditary ataxia," recognizing that they constituted a group quite distinct from previously classified forms, remarked that if they were to be accepted as instances of Friedreich's ataxia, the criteria of this disease should be considerably modified, but ventured no opinion as to classification. In this truly remarkable series

of more than twenty cases, the disease was traced through four generations and was found to preserve a tolerably determinate form. In addition to ataxia, the principal characteristics were:—onset after early childhood (11th to 45th year), optic atrophy, ptosis, impaired pupillary reflexes, exaggeration of knee-jerks, and imperfect articulation; no sensory symptoms, disturbance of the muscular sense, spinal curvature or club foot. In commenting upon these cases both Omerod⁸ and Bernhardt⁹ compared them with those of Nonne and also with the case, or rather cases, of Menzel, presently to be mentioned, and both were unwilling to allow that Brown's cases constituted an aberrant form of Friedreich's disease, but neither ventured to assert identity of the type with those of Nonne.

Klippel and Durante were also non-committal as to the nature of their cases, entitling their communication "Contribution to the study of family and hereditary nervous affections." Their patients, two brothers and a sister, like most of the others presented incoördination, impaired speech and eye troubles, but unlike the others, also sensory symptoms, scoliosis and club-foot (pes cavus).

Passing now to the pathological basis of the new disease we find a foundation insufficient in both extent and uniformity. At the time of Marie's paper he could refer to only two autopsies; one each by Fraser and Nonne. In Fraser's case the cerebellum was found to be small (one-half the normal weight), the Purkinje cells diminished in number and altered in form. There were also cystic collections of fluid between the convolutions, which the author considered to be unimportant. Apparently the cord was not examined. In the case of Nonne the cerebellum (with pons and medulla) weighed only 70 per cent. of the normal, but the cerebrum was also small (87 per cent. of normal) and the cord proportionately smaller than either. Squaring the average diameter of the cord and multiplying this by the length, as a basis of comparison of bulk, I find that the cord of the patient was in total size only 44 per cent. of normal. Clearly, to assert atrophy

of the cerebellum as the essential and basic lesion in this case is to approach seriously near to the absurd—the more so as an exhaustive microscopic examination failed to reveal anything abnormal except in the proportion of coarse and fine fibers in the nerve roots of the cord and in some of the peripheral nerves.

Marie has, indeed, as Nonne¹⁰ says, drawn the boundaries rather wide. To make this fact graphically apparent, I have constructed the accompanying table, from which it is readily seen that while each of the four sets of cases remains reasonably constant to its own type, all the cases agree in only two particulars—incoördination and family type—although nearly all showed present or exaggerated reflexes. In addition it may be specially noted that excepting only the cases of Sanger Brown, there is no conclusive evidence of direct heredity.

The basal cases, then, are constant to each other in neither heredity, age at onset, rate of progress, eye symptoms, sensory symptoms, speech, mental disorder, condition of reflexes, nor post-mortem findings. Subsequent contributions have not as yet served to crystallize a type or even to simplify the complexities of the subject, as, I think, a brief review will show.

Since Marie's publication three of Sanger Brown's cases have come to autopsy and in one of these (No. VI.) a microscopic examination has been made by Dr. Adolf Meyer¹¹. As no notes were made at the time of the autopsy¹², the exact size of the different parts of the nervous system is not known, but there was no striking diminution in the size of any part, and Meyer says, "There is no circumscribed cerebellar lesion, nor does the cortex show a marked decrease of the number of Purkinje cells." The cervical cord showed changes very similar to those found in Friedreich's disease. In other words, this autopsy lends no support to Marie's claim. As Meyer very moderately puts it, "The separation of a *type cérébellaire* is clinically justified, but anatomically to less extent than Marie seemed to expect. The material of the other two au-

Cases and Reporter	Hereditry	Number of cases in family	Age at onset	Disease at onset	Optic nerve	Pupil's	Muscle	Pupils	Speech	Mental	Autopsy	Remarks
Fraser	1 None	2	2-3	None	None	Present	None	Slow, hesitating	Normal	Small cerebellum, "ell" movements of eyes		
	2 None	2	About 2-3	Present	,"	,"	Present	Slow	,"			
	1 None	3	25-30	Present	None	Paresis	Present	Irregular	Slight acute dementia	Small nervous system		
	2 None	3	14	Slightly exaggerated.	,"	,"	,"	L. X. R.	Explosive			
	3 None	3	10	Brisk	,"	,"	,"	Normal	Incoordinate	Weak		
Brown	1 Present	4	18	Exaggerated	Present	Present	None	Slow	Normal	Cerebellum normal		
	2 "	4	20	,"	Probably beginning	,"	,"	,"	,"	changes		
	3 "	4	18	,"	Present	Present	,"	,"	,"	Cerebellum normal		
	4 Incipient	1	21	Absent*	,"	Present	None	No react. to light	Defective	changes		
	5 "	1	35	Exaggerated	,"	,"	,"	Slow	,"	Normal		
	6 "	2	31	Exaggerated	,"	None	,"	,"	Defective	changes		
	7 "	4	35	,"	,"	,"	,"	,"	,"	Normal		
	8 "	3	40	,"	,"	,"	,"	,"	,"	,"		
Klippel & Durante	1	3	26-27	Present	Absent	None	None	Present	To light—To accom.	Indistinct memory		
	2 "	3	33	Feeble or absent	,"	,"	,"	,"	slight	slightly weak		
	3 "	3	35	Present	Present	Present	Present	Present	Varied	Ataxic	Changes in cord & cerebellum	

ount of contractures. ¹In 1888 knee-jerks were diminished, in 1894 gone. ²Londe is mistaken in reporting optic atrophy present in these cases. ³In 1888, reaction normal; in 1892, lost; in 1894, slight.

topsies (cases 18 and 20 of Dr. Brown's diagram) is now in process of examination by Dr. Lewellys F. Barker*

One of the first to accord recognition to Marie's disease was Brissaud¹³ but he did so with some reserve, insisting that although *héredo-ataxic cérébelleuse* might be essentially different from Friedreich's disease, its systemic localization was nearly the same, and acknowledging that if his patient had only had absence instead of exaggeration of the deep reflexes he would instantly have made a diagnosis of Friedreich's ataxia. Later in the same year Londe¹⁴ published a report of two additional cases which likewise were to be distinguished from Friedreich's disease only by the exaggeration of the reflexes.

Quite the most complete treatment of the subject is the later monograph of this author¹⁵, who bases his description on the cases already mentioned, two of Erb¹⁶, and two of Seeligmüller¹⁷.

The patients of Erb were two sisters, aged twenty-two and eleven years, in whom the disease had existed for sixteen and four years respectively. The knee-jerks were "very lively" or "exaggerated." Erb demonstrated the cases as examples of Friedreich's disease, and indeed, aside from the condition of the knee-jerks, there seems to be no possible reason for calling them anything else.

I have found only an abstract of Seeligmüller's cases, but they appear to belong neither to Friedreich's nor Marie's disease. Indeed, Londe frankly says that he is unable to classify them, but as they showed incoordination and lively knee-jerks, he puts them in as cases of *héredo-ataxic cérébelleuse*—a rather feeble excuse, it seems to me.

In a paper published several years after the one that Marie made use of, Nonne¹⁸ reported six more peculiar cases marked especially by incoordination, and therein he distinctly declines to support the dictum of Marie, not only calling attention to the fact that the basal cases of this author differed in some of the fundamental symptoms, but also insisting that

*See statement of Dr. Barker, second paragraph before report of my case.

transition forms could be found bridging all the differences between Friedreich's ataxia, cerebellar atrophy, Marie's type and other entirely unclassified forms of disease. Indeed, four of the cases reported in this second paper are particularly good examples of these connecting links.

Another stumbling block is the case of Menzel¹⁹. Why it should be excluded, as it is by Marie, or considered as intermediate, as it is by Londe, is not clear, in the presence of family character, onset relatively late (twenty-eight years), incoördination of all extremities, pupillary signs and exaggeration of the knee-jerks. But Marie probably considered that he could not include it in his type because the anatomical changes did not agree with what he thought *they ought to be*. Besides atrophy (or rather aplasia) of cerebellum and pons, there was the cord degeneration typical of Friedreich's disease. In the absence of autopsy I am inclined to think he would have made the case of Menzel part of his foundation. As it is, he mentions the post-mortem as showing the lesions of both hereditary cerebellar ataxia and Friedreich's disease, and intimates that therein is cause to give us pause.

In 1893 Senator²⁰ published what he believed to be an incipient case of Friedreich's ataxia and expressed the opinion that the disease is essentially a congenital atrophy of the cerebellum, or important parts thereof, accompanied by congenital atrophy of the spinal cord. This position was very warmly attacked by Schultze²¹ who asserted that the case was not one of Friedreich's disease at all because the knee-jerks were present and there was no locomotor (only static) ataxia. In a second paper, Senator²² valiantly defended his opinion, and, clinically, at least, had rather the better of the argument as by that time the knee-jerk had quite disappeared on one side and almost on the other.

Two years before the paper of Marie, Fornario²³ recorded three cases of hereditary ataxia (two brothers and a sister) anomalous in several respects. The second one exhibited exaggerated knee-jerks, but later the jerk diminished on one side. Discussing his cases the author in a measure anticipates Marie but is much more conservative. He called at-

tention to the difficulty of clinical distinction between the cerebellar, spinal and combination cases, and seemed to assume a chiefly cerebellar origin for Friedreich's disease.

The case of Menzel, just noted, early showed exaggerated knee-jerks while later they were hardly to be elicited, and one of the patients of Klippel and Durante, as noted in my table, exhibited at the time of examination normal knee-jerks while two years later Oulmont and Ramond²⁴ found them absent.

In a recent number of *Brain*, Howard Gladstone²⁵ describes a case of Friedreich's ataxia with presence of the knee-jerks and ankle-clonus. Not only was the case sufficiently typical, with the exception of the reflexes, but it was comparatively advanced, and a younger brother had the same disease much less advanced but with loss of deep reflexes. Starr²⁶ reports a case adhering to the type of Friedreich in all essentials, except that "the knee-jerks were very much exaggerated," and avows the as yet inadequacy of distinction between this disease and that of Marie.

Of two sisters with Friedreich's disease described by Raymond²⁷ one had brisk knee-jerks and the other none. I have myself seen a sufficiently typical and well-advanced case of Friedreich's disease in which the knee-jerks were present although they had been diminishing for some time, and Hodge²⁸ mentions three cases, all with marked increase of the knee-jerk. The disease began at twelve, fourteen and fifteen respectively, and the patients were still living at forty-four, forty, and thirty-nine years.

From the clinic of Erb, Paravicini²⁹ reports a case of what he calls cerebello-spinal ataxia inasmuch as it partook of the clinical features of both Friedreich's disease and *héredo-ataxic cérébelleuse*. To the ordinary symptoms of the former were added rigid pupils and ocular paralyses, but optic atrophy was wanting.

The two cases reported as hereditary cerebellar ataxia by K. Miura³⁰, correspond clinically very closely to the type of Marie, but a most careful post-mortem examination of the

first one revealed simply diminution in size of pons, medulla, cord and cerebellum, without microscopic change.

A series approximating that of Sanger Brown in extent and interest is recorded by Lennmalm³¹. Of thirty-three members of the family in several generations, eight seem to have had the disease and of these the author reports three—a young woman of twenty-two, her mother *act.* fifty-two, and a maternal aunt *act.* forty-five. They were characterized by late inception (13, 43 and 26 years respectively), gradually appearing and progressing ataxia of the lower extremities, later involvement of the arms, defective vision, paresis of ocular muscles, imperfect articulation and exaggeration of deep reflexes, including ankle-clonus. Unfortunately, autopsies are wanting.

Somewhat different are the cases (a sister and two brothers) reported by Rossolimo³². There was no evidence whatever of previous or collateral members of the family having had any similar affection. The sister, 29 years old, had always been rather clumsy in her movements, and only middling bright mentally, but there was no progress of symptoms until after a severe accident at the age of twenty. She was found to have advanced ataxia, involving the hands which were also tremulous, paresis of one superior oblique and exaggeration of the knee-jerks. One brother, 24 years old, developed in a perfectly normal way and remained well until the age of eighteen, when, after a severe febrile illness, he began to develop the symptoms of hereditary ataxia. Prominent were the characteristic gait, ataxia of the hands, paresis of one internal rectus, over-action of facial muscles, exaggerated knee-jerks and slight ankle-clonus. In the next younger brother nothing abnormal was noticed until the age of thirteen, when he began to have an uncertain gait. Examination showed incoördinate over-action of facial muscles, imperfect articulation, ataxia, and paresis of one internal rectus. No mention is made of reflexes.

About 1894 Dr. I. H. Neff³³ published a series of cases in one respect more remarkable than any on record; viz., the age at onset. He had an opportunity of examining only two

cases (sisters), but if we may suppose the other cases in the family, traced by correspondence and personal interview, to have been the same disorder, there were thirteen cases in four generations and the disease never began under the age of fifty-five. One patient in whom it began at sixty was still living at eighty-six, unable to walk but mentally clear, and in two instances it began at seventy-two. In his first case the trouble began at fifty-five years, the first symptom being in-coördination in walking. Then followed pains, not severe, in the back and legs. At fifty-eight, the arms and hands showed ataxia, and six months later speech became hesitating and stammering. A year after this she had become quite helpless, but presented no mental symptoms. At seventy-two years she began to exhibit irritability with occasional confusion and persecutory delusions alternating with depression. At this time incoördination of the lower extremities was extreme. The arms showed ataxia and volitional tremor. Speech was slow, ataxic and explosive, accompanied by tremor of facial muscles. The pupils were equal in size and reacted normally, vision unaffected. The inner surfaces of the legs were slightly anesthetic and sensation seemed delayed, probably in consequence of the mental state, as there was some dementia. The knee-jerks were active and slight ankle-clonus was elicited on the right side. Faradic excitability is said to have been increased. Six months later occasional twitching of the eyes could be observed when the patient fixed, and the pupils reacted sluggishly to light. Three months after this their reaction was normal.

His second case was a counterpart of the first except that the disease began ten years later, and that possibly optic atrophy developed in the terminal stage. One of these patients was an inmate of the asylum at Kalamazoo, Michigan, and the superintendent, Dr. William M. Edwards, has kindly furnished me the following additional information:

She lived more than five years after Neff's last note and about a year before death her condition, briefly, was as follows: While possessing a fair degree of strength, incoördination was so marked that she could walk only a few steps

without assistance, and the movements of face, tongue and upper extremities were also extremely ataxic. The knee-jerks were slightly decreased except on reënforcement and the pupillary reflexes were normal. The patient was quite deaf and "failing some in vision"—cause not stated. Aside from slight depression at times, her mental state was normal. At the autopsy, "examination of the brain and spinal cord revealed no gross changes excepting adherence of the dura in the frontal region and shallowness of the fissures." A microscopic examination has been made at the Pathological Department of the Michigan State Asylums, whence a full report will issue. The note sent to Dr. Edwards is simply to the effect that there were present atrophy of the cerebellum, degeneration of the cerebellar tracts of the cord, and marked arterio-sclerosis of cerebral vessels. So far as known, then, this case scarcely sustains the contention of Marie.

Illustrative of how cases may adhere to the schema of Marie in some particulars and entirely depart from it in others, the case of Legrain³⁴ (de Bougie) may be cited. The mother, four maternal aunts and the maternal grandfather had died between forty and fifty, of an affection diagnosed "ataxia," and an elder brother had died at thirty-two of a similar disease. In the patient, uncertainty of gait began at the age of thirty-one, and at thirty-eight, when examined by the author, incoördination was marked in the upper as well as the lower extremities. The deep reflexes were exaggerated, sensation and mentality intact. Eye symptoms were entirely wanting and in addition to the disorder of motion, there were observed, when the patient was at rest, constant slight choreiform movements of different parts of the body—muscular inquietude. It is also to be noted that beginning two years after the onset of his malady, the patient suffered for two years with excruciating pains in thighs and calves, associated with muscular cramps of extreme severity.

In the same category of aberrant cases, cases that really adhere to no type and yet might be thought to fall within the limits of hereditary cerebellar ataxia, belongs the case of Collins³⁵. The only indication of hereditary family disease was

that the preceding child, who had died at the early age of two years, had not developed normally and *probably* had some incoordination. In the patient, a boy eleven years old, imperfect gait had been noticed as early as the third or fourth year. Having started to school at five, he was still in the same grade. In his tenth year he had some kind of acute attack, in which the left side became useless and thereafter there were exacerbations of incoordination on one side or the other. At eleven, he had an uncertain gait and fell easily. There were also present ataxia of the upper extremities, involvement of speech, over-action of the facial muscles and right *pied bot*. The pupils were slow to light and accommodation.

Who can at present say where the three cases of Nolan³⁶ belong? He reports them as cases of Friedreich's disease, (hereditary ataxia), associated with genitous idiocy, and while asserting that they were "without doubt" examples of Friedreich's disease, he notes points of resemblance to Marie's disease, the peripheral hereditary ataxia of Dejerine and Sotatas³⁷, and family cerebral diplegia. The patients were the third, fifth and eighth children of the same family, the ages were twenty-two, fifteen and ten years respectively, in each case symptoms were noticed soon after birth, although the disease was gradually progressive; mental impairment and incoordination were present in all. Two had no knee-jerks, which would indicate Friedreich's disease, but in the second patient they were exaggerated. Furthermore, the pupils reacted normally in all three. All showed speech defect and nystagmus, two slight strabismus, but all normal vision. The first and second patients had some analgesia of the extremities, and the second and third wasting of the small hand muscles.

In a recent exhaustive paper on family diseases, Bäumlin³⁸ calls attention to many variations of Friedreich's ataxia and sundry inconsistencies of Marie's disease, and also reports a group of four sisters who presented clinically a certain similarity to the latter, but who suffered, he believes, with Westphal's³⁹ pseudo-sclerosis. In any event, the care-

ful autopsy made in one case revealed nothing but very slight chronic meningitis.

The difficulty of asserting the type which Marie so loosely defines is manifest in the presence of cases like that described by Spiller⁴⁰. It appears to have been congenital in origin, or at least to have begun in extreme infancy, to have presented no very distinct ataxia, but marked mental impairment, and to have been scarcely at all progressive from infancy to the age of nineteen when the patient succumbed to tuberculosis. He was microcephalic and at the autopsy not only was the cerebellum found to be small, but the corpus callosum was almost wanting and the left cerebral hemisphere was markedly atrophic. In the same article three other cases of cerebellar disease are reported, very similar to this one, but not included in the same category by the author.

Cases such as that reported by Knopfelmacher⁴¹ are far from rare and yet he endeavors to approximate it to hereditary cerebellar ataxia. A boy of six years exhibited speech defect and incoordination which had been noticed from earliest childhood and had remained non-progressive. The case resembled hereditary cerebellar ataxia only in the presence of these symptoms and exaggerated knee-jerks, but it is only fair to hold Marie himself in part responsible for such irresponsible classification, because he has defined a certain group with such comprehensive and elastic definition as covers a multitude of sins.

Quite similar to the foregoing case is the one reported by Redlich⁴², but this author at once says that the resemblance to Marie's type is superficial only. The patient, *act.* fifty-two had some acute illness at the age of two years and was thereafter "paralyzed and blind." He presented all the more important signs of hereditary cerebellar ataxia, but Redlich, very properly, I think, considered the cause to be an acute inflammation at the time of onset, followed by atrophy and sclerosis.

After this paper was quite finished except some verbal corrections, came the *Revue de Médecine* for September, 1901, containing the admirable article of Thomas and Roux. Their

paper seems to render what I have written quite superfluous, because it is so conclusive as to render discussion profitless. These authors made a complete and exhaustive post-mortem examination of one of the patients reported clinically by Klippe1 and Durante—one of Marie's basal cases. They found a small central nervous system, especially small cord and nerve roots. With the microscope were revealed: some atrophy of the gray matter of the cord, especially the columns of Clarke and root of the anterior horns; atrophy of the nucleus of the lateral tract in the medulla; partial degeneration of the posterior columns, principally of the columns of Goll in the cervical region; degeneration of Gowers' tract in dorsal and cervical regions and degeneration in the central part of the restiform body. The small size of the nerve roots (anterior and posterior) was most pronounced in the lumbosacral region, and was due not to degeneration, but to the exceeding fineness of the nerve fibers. The cerebellum was normal.

In this paper I first learned that two pupils of Marie have reported the post-mortem findings in another of Klippe1 and Durante's patients. Apparently there is some confusion in Marie's camp for, strange as it may seem, the first, Vincelet,⁴³ regards the case as one of Friedreich's disease while the second, Svitalski⁴⁴ calls it hereditary cerebellar ataxia. The former found a small cord, sclerosis of the posterior columns well marked in the lumbar region, less in the dorsal region. In short, changes much like those of Friedreich's disease with something added. The latter found in the medulla degeneration of the direct cerebellar tract and the nucleus of the column of Goll. The remainder of the medulla was normal, but small. In the pons there was diminution of the fibers of the middle cerebellar peduncle and thickening of sub-ependymal tissue of the fourth ventricle and aqueduct. The number of convolutions of the cerebellum was finished; the fissures were deep and wide. Minute changes were found between the molecular and granular layers of the cerebellar cortex, and the central white matter was small and stained poorly. There was proliferation of connective tissue in the right optic

nerve. In nerve roots and peripheral nerves the number of large fibers was diminished, and the small fibers were increased. It is quite evident that the cerebellar changes were less pronounced and of less significance than those in the cord.

And finally, Dr. Lewellys F. Barker informed me a few days ago that the cords from Brown's two cases show well-defined degeneration, while the cerebellar findings, so far as the examination has been made, are extensively negative.

Doubting the existence of a disease meriting the title hereditary cerebellar ataxia, I have still for convenience called my case by this name. Should there really be such a malady, I am naturally in doubt as to whether I am reporting an example of it.

A. V. B. was first seen December 3, 1899, through the kindness of Dr. E. M. Smith⁴⁵. He was almost nineteen years old at that time. As far as known the ancestry is excellent. Both parents are living and in good health. They are not blood relatives, there is no discrepancy in age (now 53 and 58), and no evidence of either having had syphilis. The mother, married at eighteen, has been pregnant nine times. All children have been boys. The first child is said to have died of a fall and brain fever. At seven months he fell from a high-chair, was immediately limp and then stiff, but soon regained consciousness and apparently suffered from no grave consequences. The mother states that he was not so bright and lively after the fall, and about three weeks later developed cerebral symptoms, and died at eight months. The second child had congenital heart disease, was a "blue baby" and died of exhaustion at three months. The third child was normal, grew to manhood and was perfectly well when I first saw my patient. Some months later he contracted scarlet fever followed by nephritis, of which he died. The fourth pregnancy was terminated by a miscarriage in the third month, cause unknown. Eight years after the birth of the third child the fourth was born, the miscarriage having intervened. This boy was Frank of whom I shall speak presently. Fifteen months after this birth the sixth pregnancy resulted in a still-birth at eight months, presumably from over-lifting. About four years after Frank, my patient, was born. The next child followed in three and a half years, is living, and a picture of health. The seventh child, result of the ninth pregnancy, died at eighteen months, of bronchitis and cholera morbus after an illness of four weeks.

The boy Frank was apparently entirely normal as a young child, and at the usual age entered school where he seemed to be quite up to the average in intelligence. When ten or eleven years old a gradual change in character began. He became very timid and must have shown some peculiarities, as the other children teased and pursued him. Nevertheless, he continued at school until about fifteen years old, but made very little progress. When about thirteen he developed a *penchant* for grubbing in garbage boxes, played truant, and by degrees became a good-natured, weak-minded runabout. At the age of four or five he had been struck by a street car, and when fifteen or sixteen fell down a flight of stairs, but neither of these accidents was severe or immediately followed by bad effects. Unsteadiness in walking became apparent when he was sixteen and a half years old, and was progressive. Incoördination soon invaded the upper extremities, and it is distinctly stated that the left side (leg and arm) was much worse than the right. This disability of the left arm and leg seems to have been in part paretic and not due entirely to ataxia. Within a year of the beginning of motor trouble the left side was nearly useless, and after a time developed contractures. Speech began to be affected six months after the ataxia began, that is, three and a half years before death, and gradually grew worse until it was quite lost shortly before death, the patient uttering only unintelligible sounds. Incoördination was steadily progressive; he deteriorated mentally to the point of idiocy; finally became extremely emaciated and completely paralytic, and died at the age of twenty. There is no history of eye symptoms. Incontinence was present during the last year of life, and bed-sores appeared before the end. It may be worthy of mention that once during his illness when he scalded the right leg by spilling soup upon it, apparently no pain was felt.

My patient was born at full term four years after this older brother. The labor was normal. He learned to walk and talk at the proper age, did not wet the bed later than normal, cut his teeth sufficiently early, had neither eruptions, convulsions nor any severe illness. As a child he seemed to be quite as other children, attended the public schools until fourteen or fifteen years old, where his standing and progress were satisfactory, and then procured a position as messenger and general utility boy in a store, where his services were also satisfactory until about a year and a half before my first examination. That is, the trouble began three and a half years ago. The first symptom to appear was unsteadiness of gait, to which were soon added general nervousness and ir-

ritability. He then became forgetful, so that it was necessary to write down the details of errands and the like. These signs of mental impairment dated back nearly a year. Since that time progress for the worse had been rather rapid, and four to six months before, it was noticed that speech was affected. When examined, his mentality seemed to be about that of a child of six or eight. He could read, but with numerous mistakes; he was unable to repeat even the "twos" of the multiplication table, and memory was very defective. Irritable, rebellious, transiently morose, changeable, tickled by trifles, he presented the clinical picture of an ordinary imbecile. Speech was slow, mouthing, a little indistinct and rather hesitating, not scanning, not explosive, and, on the whole, scarcely more imperfect than the mental condition. In fact, it much resembled that of some patients with infantile cerebral paralysis and imbecility. It lacked the tremulousness, slurring, varying voice and omissions of general paresis. General nutrition was apparently but little interfered with, although the boy was rather thin. Thoracic and abdominal viscera were normal, as were also the sphincters. The gait was distinctly ataxic and somewhat, far from purely, of the cerebellar type. In standing, incoördination was easily apparent, although the boy could stand with feet together. In neither station nor progression was the ataxia increased by closing the eyes, and in walking he did not regard the floor as does a tabetic. The upper extremities were also incoördinate, although to a less extent than the lower; in picking up small objects the hand "hovered" for an instant before prehension, and excess of movement was often apparent. There was no tremor of any part, in action or at rest. During speech, over-action of the facial muscles was very evident, predominating at different times in different parts of the face. Often this gave an appearance of one-sided paresis really not present. Indeed, there was no paralysis to be found anywhere; neither was there atrophy or deformity. The arch of either foot was unusually high, but could not be affirmed to be pathological, the toes were normal in position and motion, the spinal column normal. Owing to the mental condition the examination of sensation was not very satisfactory, but apparently it was normal. Certainly no marked defect was present. Pain had not been a symptom at any time. The pupils were large, equal, slightly irregular, did not respond to light and very slightly, if at all, to accommodation. Movements of the eyes, vision, the fundi oculi and hearing were normal. The deep reflexes were all exaggerated except the jaw-jerk which could not be elicited. Ankle-clo-

nus was absent, although the ankle-jerk was so excessive as to lead me to expect its presence. At this time and for some months thereafter he amused himself a great deal of the time by copying verses. When first seen this was done with fair accuracy and good chirography. A specimen two months later showed mistakes of omission and commission and some irregularities in penmanship. The appetite was capricious, but on the whole good, bowel and bladder functions said to be undisturbed, deglutition free, sleep normal.

A diagnosis of hereditary cerebellar ataxia was made, but to be on the safe side an active course of anti-syphilitic treatment was advised. Accordingly, Dr. Smith put him on inunctions of mercury and rapidly increasing doses of potassium iodide, but the patient soon grew worse, in fact became bedfast from weakness, and the treatment was stopped. He quickly regained almost his former condition and then gradually lost ground.

Examination November 22, 1900, nearly a year after the former one, revealed simply moderate physical and mental change for the worse. He was thin and rather pale, walked with the feet rather far apart and with short, irregular, rather jerky, stiffish steps, steadyng himself by pieces of furniture as opportunity offered, although he could walk without support of any kind. The gait was not at all typical of cerebellar disease, having very little of the wide swaying and body reeling in its make-up. Ataxia of the upper extremities was slightly worse than before. Tremor was still absent. The high arch of the feet had not changed. On stroking the sole of either foot the great toe was at once hyperextended, the movement differing from the typical Babinski sign in that it was very prompt, and thick. This reflex was more pronounced on the left side. Ankle-clonus was present on the right side and an indication of it on the left. Speech was slow, indistinct, with an occasional stutter and much "mouthing"—not unlike that of a very drunken man. Funeral was pronounced fun'l; November, Nowember; Sedgwick, Sed'k; electric lights, 'lec' ligh'. Overaction of the facial muscles was marked. The lips were pouted, or retracted, corners of the mouth drawn back, brows strongly elevated, then drawn down and together, etc. Frequently the first two or three words of a sentence were repeated, before the whole was delivered. Mentally there was little change. To questions in figures he responded as follows: "6 times 6 equals 66; 5 times 5 equals 25; 3 times 25 equals 75; 6 times 7 equals 49; 2 times 8 equals 16; 4 times 25 equals a dollar; 5 times 25 equals a dollar and a quarter." Despite the dementia and

facial overaction, at times almost amounting to contortion, the face was very far indeed from being expressionless. When he was pleased and laughed, the face lighted up, and when displeased or resentful the play of expression was equally striking. When at rest the features certainly lacked expression.

During the past year degeneration has been more rapid. The boy now (November 1901) is much emaciated, eyes sunken and not entirely closed in sleep, face pale and smooth as if the skin were stretched over it. The tongue is coated and there are sordes on teeth and lips. This condition may be due in part to obstinate constipation. When the bowels move there is incontinence and consequently the mother, who has entire care of him, causes an evacuation only about once a week. Incontinence of urine is also present. Ataxia has reached a degree making it impossible for him to walk without assistance and almost impossible for him to feed himself. Speech has been steadily growing worse until now it may be said to have disappeared. He apparently attempts to talk but only inarticulate sounds result; yes and no are at times barely distinguishable. Phonation is intact. Occasionally he has shouting or screaming spells when he can be heard all over the neighborhood. Without ascertainable cause he becomes destructive, tearing bedding or his clothes to shreds. He is never violent but may refuse food or resist being dressed, undressed or cleaned, and on such occasions may attempt to scratch or even bite. Besides the screaming spells, there are times when he repeats the same expression, as "la-la-la," over and over. The brother did the same thing, and before losing speech would repeat a word in the same way, sometimes for minutes together without intermission. As the forgoing indicated, A. is now demented. He seems to understand very little, but I am sure recognizes me, and his face lights up much as it did at first, with excessive rising of the eyebrows, opening of eyes and wrinkling of forehead. Pupils and deep reflexes are unchanged, except that at my last visit I could get no ankle-clonus. Muscular strength is fair and tremor absent as heretofore. Vision seems to be good. A few weeks ago he could recognize his name written with a pencil in an ordinary hand, and made a not altogether unsuccessful attempt to copy it. At that time he could not articulate a word. His mentality, therefore, is quite above his power of speech.

In this case the progressive mental failure, rigid pupils, ataxic gait with exaggerated reflexes and indistinct speech,

together with the history of miscarriages and deaths in infancy, at once suggest precocious general paresis due to inherited syphilis. On this supposition the elder brother may have had the same disease, or, bearing in mind the hemiplegia, syphilis hereditaria tarda. Remembering that precocious paresis is apt to be atypical, I have had this possibility constantly in mind. Even now I have no inclination to be dogmatic on the subject, but the case has never looked to me like general paresis, and I think that diagnosis could not be maintained. Adequate evidence of syphilis in the parents is wanting. What Freud⁴⁶ noticed in the family of his diplegics and called *eine Neigung zur Leichtsterblichkeit* (vital vulnerability), in my opinion explains the early deaths and miscarriages in the family as well as does the theory of specific disease. Incoördination distinctly antedated mental deterioration, and has throughout dominated the clinical picture. No trace of a delusion has ever been detected; tremor of lips, tongue and hands has been consistently absent. In addition, absence of the Argyll-Robertson pupil, of analgesia of the legs, of good-natured self-satisfaction and mental depression alike, would tend to exclude paretic dementia. Extreme over-action of the facial muscles is no part of the symptomatology of this disease, and by this time there should be more motor feebleness than is the case.

Granted that there is very considerable resemblance of my case to general paresis, it is but reasonable to suppose that the histological changes are not widely different from those of the latter disease. But how is it possible to reconcile such a state of affairs with cerebellar wasting as the anatomical basis of hereditary cerebellar ataxia? It is not possible. It were as reasonable to call my case merely one of Friedreich's disease with mental symptoms. In the light of all the symptoms exhibited by Marie's basal cases and by those since reported, but especially in the light of discovered changes in the central nervous system, it is almost preposterous to ask one to believe that the whole symptom-complex is caused by degenerative changes in the cerebellum. In this connection, too, it is well to remember that the combined

sclerosis of Friedreich's disease is far from explaining all the symptoms of that disease. To account for the nystagmus, disordered speech and changed facial expression we are almost forced to assume changes at least as high as the pons and cerebellum, and when mental defect appears, as is sometimes the case, still higher involvement must be present. If by hereditary cerebellar ataxia we may understand an hereditary, or at least a family, disease of those systems of neurones, afferent and efferent, having to do with the cerebellar function, the name could be provisionally tolerated. Otherwise, it should be at once suppressed or restricted to a class of cases not yet discovered. For the present it would seem wise to follow the example of Sanger Brown and confine ourselves to the simple term "hereditary ataxia." Five or six years ago⁴⁷ in reviewing Londe's monograph, I said: "In brief, hereditary cerebellar ataxia is to be distinguished clinically from Friedreich's disease by the absence of certain symptoms, all of which it may in time take on, and by the frequent presence of eye symptoms, generally absent in the latter; but the latter may in turn take on these same ocular symptoms. Pathologically we have in hereditary cerebellar ataxia an atrophy of the cerebellum, with at times certain changes in the spinal cord; in Friedreich's disease, these same cord changes and at times (not always, as Senator would have it) an added cerebellar atrophy. It seems reasonable, then, to conclude that in these two affections we have but one disease, affecting a sensori-motor system concerned with coördination and equilibration, and that as one or the other part of the system is first or exclusively affected, so the clinical picture will vary." Later I learned that Edinger⁴⁸ had expressed practically the same opinion. This opinion must now be modified to the extent of excluding cerebellar atrophy without involvement of the cord, as there have been no autopsies which would support such a supposition. It should also be amplified to the extent of distinctly affirming at least occasional cerebral involvement.

The relation of mental failure to the somatic signs is yet to be worked out *de novo*. Knowing as little as we do of the

connections of the neurones of motion, coöordination and equilibration with those of the higher mental faculties, to discuss why some patients with hereditary ataxia should become dementes and others remain intellectually intact to the end, were mere speculation. Whether the cerebral degeneration, necessarily underlying the mental failure, occurs as part of a huge system disease or simply as a coincidence in an organism prone to deterioration because of inborn frailty, or because of two quite distinct inherited tendencies, or by reason of some law of associated dissolution as yet unsuspected, is not to be stated at present.⁴⁹

¹Marie, *Semaine Médicale*, p. 444.

²Fraser, *Glasgow Medical Journal*, 1880, Fasc. I.

³Nonne, *Archiv für Psych.*, 1891, xxii, p. 283.

⁴Sanger Brown, *Brain*, 1892, p. 250.

⁵Klippl and Durante, *Revue de Médecine*, Oct. 1892, p. 745; *Semaine Médicale*, 1892, p. 467.

⁶Homén, *Archiv für Psychiatrie*, 1892, Bd. 24.

⁷Freud, *Neurolog. Centralb.*, 1893, pp. 512 and 542. Higier, *Deutsche Zeits. f. Nerv.* ix., p. 1. An interesting and complete paper with very full literature. Haushalter, *Rev. de Méd.*, 1895, p. 434. Bouchard, *Rev. Neurolog.*, 1894, No. 1. Brower, *Medicine*, January, 1897.

⁸Ormerod, *Brain*, 1892, p. 268.

⁹Bernhardt, *Idem*, p. 278.

¹⁰*Archiv. f. Psychiatrie*, 27, p. 481.

¹¹Adolf Meyer, *Brain*, 1897, p. 276.

¹²Not made by Meyer.

¹³Brissaud, "Leçons sur les Maladies Nerveuses." Series of 1893-94, pp. 43 and 61. Brissaud and Londe. *Revue Neurol.*, March 15, 1894.

¹⁴Londe, *Semaine Médicale & Revue Neurol.*, October 1, 1894.

¹⁵"Héréo-ataxie Cérébelleuse." Paris, 1895.

¹⁶*Neurol. Centralb.*, 1890, p. 378.

¹⁷Seeligmüller, *Archiv f. Psychiatrie*, Vol. x., p. 222.

¹⁸Nonne, *Archiv f. Psychiatrie*, Vol. xxvii, p. 479.

¹⁹Menzel, *Archiv f. Psychiatrie*, Vol. xxii, p. 160.

²⁰Senator, *Berl. kl. Woch.*, 1893, p. 489.

²¹Schultze, *Berl. klin. Woch.*, August, 1894.

²²Berl. kl. Woch., 1894, Nos. 28 and 33.

²³Fornario, *Annali di Neurologia*, 1891, Fasc. vi. Abstract in *Journal of Nervous and Mental Disease*, 1895, p. 381.

²⁴Oulmont and Ramond, *Mercredi Méd.*, 1895, p. 97.

²⁵Howard Gladstone, *Brain*, Winter Number, (No. 88) 1899, p. 615.

²⁶Starr, *Jour. of Nerv. and Ment. Disease*, 1898, p. 175.

²⁷Raymond, "Leçons sur les maladies du système nerveux. Series 1896-1897, p. 329.

²⁸Hodge, *British Medical Journal*, June 5, 1897, p. 1405.

²⁰Paravicini, Correspondenzblatt für Schweizer Aerzte, 1901, No. 10. Neurolog. Centralb. Nov. 16, 1901.

²⁰K. Miura, Japanese Publication. Abstract in Brain, 1900, p. 345.

²¹Lennmalm, Nord. Med. Ark., 1897, N. F. viii., No. 29. Neurolog. Centralb. 1893, p. 560.

²²Rossolimo, Abstract in Neurolog. Centralb., 1898, p. 566.

²³I. H. Neff, Amer. Jour. Insanity, Vol. 51, (1894-5) p. 365.

²⁴Legrain, "Sur un cas d'hérédito-ataxie cérébelleuse." Paris (Maloine.)

²⁵Collins, Med. Record, December 21, 1895.

²⁶Nolan, Dublin Jour. of Med. Science, Vol. 99, p. 370.

²⁷Dejerine and Sottas, Mem. d. l. Soc. de Biol., Vol. v, series 9.

²⁸Bäumlin, Deuts. Zeits. f. Nerv. Bd. xx, p. 265.

²⁹Westphal. Archiv für Psychiatrie, Vol. xii. Strümpell, Deuts. Zeits. f. Nerv. Vol. xii, p. 115, and Vol. xiv, p. 348.

³⁰Spiller, Brain, 1806, p. 588.

³¹Knoffelmacher, Wiener med. Bl., 1897, No. 22, Neurolog. Centralb. 1897, p. 1064.

³²Redlich, Wiener med. Woch. 1896, No. 19. Neurolog. Centralb., 1895, p. 682.

³³Vincent, "Etude sur l'anatomie pathologique de la maladie de Friedreich."

³⁴Svitalski, "Sur l'anatomie pathologique de l'hérédito-ataxie cérébelleuse." Rev. Neurol. 1901, No. 3.

³⁵He was shown to the Chicago Neurological Society. January 18, 1900.

³⁶Freud, *loc. cit.*

³⁷Gould's Year-Book, 1896, p. 631.

³⁸Real-Encyclop. d. gesammt. Heilk. 1895, Vol. vii, p. 117.

³⁹Since the above was written my patient has died. To the naked eye the brain was normal except that the cerebellum seemed rather small, not reaching to the posterior pole of the cerebrum.

ASSOCIATION OF HYSTERIA WITH INSANITY.*

BY F. SAVARY PEARCE, M.D.,

PROFESSOR OF NERVOUS AND MENTAL DISEASES IN THE MEDICO-
CHIRURGICAL COLLEGE OF PHILADELPHIA.

The relation of hysteria and the various forms of insanity is in some measure twofold: first, the insanity having hysteria associated with it; and secondly, hysteria in which insanity complicates. These borderland distinctions it is not always easy to differentiate, but it is very important to make them, since the medical jurisprudence and prognosis of the case will depend upon the right interpretation.

In this short paper, it is, therefore, the writer's intention not to dwell upon the diseases, insanity and hysteria, separately, but of those associations of the two which are the more confusing to the physician. Granting that hysteria is not, in the true sense, mental alienation in the vast majority of instances, it would seem better to keep clear of the phrase "hysterical insanity" as applied to a minimum of cases of a peculiar type of insanity associated with hysteria, and, indeed, a part of it, as H. C. Wood well points out. And in these cases, from a jurisprudence point of view, we must, of course, assume responsibility of commitment to an institution, though it will be much rarer to resort to this extreme than in other cases of mental disease. Dr. Folsom, quoted by Wood, gives a very lucid description of "hysterical insanity", in which the bizarre hysteria as usually seen in any other of its protean manifestations, whether of special sense, of sensory, or of motor disturbance, or of simulation of organic disease, is shown in the mental type of the queer psychosis in question, to wit: Folsom says hysterical insanity "is characterized by extreme and rapid mobility of the mental symptoms—amnesia, exhilaration, melancholic depression, theatrical display,

*Read before the College of Physicians of Philadelphia, December 4, 1901.

suspicion, distrust, prejudice, a curious combination of truth and more or less unconscious deception, with periods of mental clearness and sound judgment, which are often of greater degree than is common in their families; sleeplessness, grotesque and distressing hallucinations of sight, distortion and perversion of facts rather than definite delusions, visions, hyparesthesias, anesthesias, paresthesias—abortive or sensational suicidal maneuvers, occasional outbursts of violence, a curious combination of unspeakable wretchedness alternating with joy, generosity, selfishness—of gifts and graces on the one hand, and exactions on the other. One such person in the house wears out and outlives, one after another, every healthy member of the family who is unwisely allowed to devote herself with conscientious zeal to the invalid."

The writer has a case of hysteria under his care at the present time, in a young woman, aged seventeen years, who has been of good intellect, perhaps the brightest of a family containing seven children. During the past four years she has had one or two attacks in which she becomes secretive, goes without food for several days at a time, and in the last attack, beginning in January, 1901, the condition of depression was associated with hysterical outbursts of crying, although she never had a convulsion. Four weeks previous to coming under our care in November last, she suddenly, while in the picture of physical health, began to go without food, and this her family persists was kept up for eight days; she imagined also that the X-rays had been used upon her and had burned her; that blood had been taken from her head, and that her head had been "sewed up," and she was surely going to die. She persisted in taking no food in spite of family solicitations and of her physician, Dr. W. F. Haines, of Seaford, Del. A week previous to her coming to Philadelphia, she began to expectorate large quantities of blood-tinged mucus. We could get no speech from her, the patient casting her eyes in disdain toward the doctor and nurse, occasionally answering a persistent question in monosyllables. She had become physically wasted and anemic. (Hemoglobin, 80 per cent.; red blood-corpuscles, 3,800,000.)

Isolation from her family, forced feeding through the stomach-tube, static electricity, with massage, have greatly improved her physical condition. Occasionally she will have an outburst of temper only to relapse into apparently studied depression. It should be stated that there is no history of hereditary mental disease in her family. The absence of a true dementia in the symptomatology, but rather the pseudo-melancholia described, makes us place the patient in the category of hysterical insanity, and that the hope for cure will come through physical betterment and morale. While she has never shown suicidal tendencies, nor do I believe she would take her life, at the same time it may be advisable to place such a patient in an institution for mind diseases, which may tend more than anything else to arouse her conscience to the fact that she can help herself.

Dr. S. Weir Mitchell has given us the most comprehensive *régime* for the successful management of hysterical disease. It is not the purpose of this paper to rehearse treatment.

Having studied and reported a case of this hybrid disease (hysterical insanity), the more unusual psychosis, we should like to give a few facts, even if not new, which will aid in the diagnosis between the (a) hysteria complicated by insanity, and (b) insanity associated with the previous hysteria, as mentioned in the beginning. The most difficult pure mental disease to distinguish from hysterical insanity is hebephrenia, or the paranoic insanity of adolescence so-called. In this there may be physical signs of degeneracy. When these are absent the mental symptoms alone will be, perhaps, diagnostic —*i. e.*, excitation of the depressive emotions in the form of a dementia rather than melancholia will prevail as the type of alienation, the patient being more disposed to wander away from home, to show no systemized studied desire to annoy her caretakers, and, withal, to show especially the lack of moral responsibility.

In a paper read before this College in January, 1900, what we considered a typical example of the latter form of mental alienation, which was diagnosed from hysteria by the differ-

ential points given above, seemed pretty clearly to be complicated at least by intestinal auto-intoxication, so that anti-septic treatment directed toward the alimentary canal was a measure added as an adjunct to forced feeding that cured the patient, if we may call it such, since no relapse has taken place in over two years. Intestinal antisepsis in the case reported to-night has seemed to better the physical state, for she is gaining weight, and pallor is giving way to a pink skin.

Hysteria as a clinical entity may develop, as is well known, beyond the essential stigmata of this psychosis, three aspects: first, the emotional element more particularly; secondly, the physical state, such as paralysis, sensory or motor; and thirdly, the clinical side may be specially shown in disturbance of organs such as the heart, stomach, etc. In our experience this first subdivision—that is, of hysteria without physical or objective symptoms—is the type that may be complicated more frequently by insanity of one form or another, and this is usually a form of mania. Such a case we have recently seen, where the mania with delusions followed pronounced hysteria due to overwork, the patient having been hysterical long before insanity set in. Forms of delusional insanity of slow onset in the hysterical subject are more likely to occur, however, where the mind is given suggestion by some physical defect, as in cases of hysteria with anesthesia or a motor palsy in the symptom-complex. The auto-suggestion through the paralysis mentioned on the hysterically enfeebled mind may produce, therefore, a true delusional insanity which may be quite intractable after recovery of all other evidences of hysteria *per se*. This is also true of the hysterical cases of the third group—that is, with symptoms referable to various organs of the body and in proportion as hereditary influences are of a markedly neurotic kind—as, for instance, in a woman under our care at the present time who has the delusion of having cancer of the breast, even after the physical demonstration has been made of its absence, and who promptly transferred the delusion to one of the stomach during a recent attack of influenza of gastro-intestinal type. This woman is eminently hysterical, and we might say, a case of de-

lusional insanity. The heredity being good, however, if the hysteria can be cured by suggestion and general upbuilding of the system, we feel the patient will recover from the mild delusional alienation.

To make it clear that hysteria is engrafted upon an insanity is the more difficult problem. Since we are disposed to interpret confusion, delusion, or exaltation as symptoms of the mental disease, it will be practically impossible to determine hysteria established upon a subacute mania. When it comes to melancholia or dementia, it seems to us it is impossible to distinguish a hysteria that may complicate the mental condition and produce, therefore, the picture of insanity *plus* hysteria. Such a state is different, as mentioned in the beginning of this short paper, from hysterical insanity, as we have tried to make plain; and distinct from hysteria *plus* insanity (usually a mania occurring in the hysterical subject.)

This subject is thought fitting to be presented more from a prognostic point and the jurisprudence aspect, since it is often most difficult to decide when a case should be committed to an institution for the treatment of the mind; and this the more important, because the presumed stigma of being committed to an asylum does exist among the laity, so it is our duty to keep out of the asylum the case that will recover by private treatment. We must weigh the family history and physical condition of the patient before committing any case of mental disease to an asylum, but we should hope to be the last not to commit the case that is likely to do injury to himself or others. Even in the case of hysterical insanity, so-called, it may be desirable to commit the patient as a *dernier ressort*. Sometimes these patients may commit suicide from mere devilishness more than from any true insanity, as in the case referred to at the outset; and if this girl does not improve we shall deem it wise to commit her to an institution within a month. The more closely we study the individual case of alienation the less easy it is to decide the prognosis, unless we *do* weigh seriously the varying symptoms (frequently confused) of that bizarre disease hysteria so frequent-

ly associated with insanity, as it has been our effort to emphasize.

If this short contribution will but stimulate a desire and endeavor to seek for the hysterical element in insanity and the close individual study of the case, it will not have been in vain. The one aspect that hysteria is apt to take in insanity, besides its well-known grotesque features, is exemplified by the entering into any case of mental disorder of a large element of the personal desire to trap the examiner, and the patient frequently shows her hysterical mental state in the spirit best manifested by the non-medical word *disdain*.

American Neurological Association

A CASE OF CERVICAL AND BULBAR TABES WITH NECROPSY.

(Abstract.)

BY WILLIAM G. SPILLER, M.D.

AND

S. SOLIS COHEN, M.D.,

A case in which some of the most important symptoms were: Nocturnal incontinence of urine beginning in 1872, drooping of the right upper lid which could be overcome voluntarily, variation in the size of the pupils from time to time, paresis of the facial muscles, difficulty of mastication and deglutition, atrophy of the tongue, disturbance of sensation, especially for temperature and pain; sharp pains in the abdominal region and lower limbs, grayness of the optic nerves and loss of reaction of the irides to light and in accommodation. Ataxia was not present and the knee-jerks were preserved. The posterior roots in the lower cervical and upper thoracic region and portions of several cranial nerves were degenerated. A clinical history of the case was published in 1889. Death occurred in 1900. A discussion of the cervical and bulbar forms of tabes was given, as very few cases with necropsy are found in the literature.

DISCUSSION.

Dr. C. K. Mills said that in cases of well-developed tabes of the ordinary type, that is, in cases in which the signs and symptoms of the disease are well-marked in the lower or upper extremities or both, bulbar symptoms occasionally develop, usually at a comparatively late period of the disease. Such cases are sometimes spoken of as bulbar tabes or cervico-bulbar tabes when the cervical cord is involved. Cases in which the lesions are those of tabes both

in character and position, and are present only in the bulb or in the bulbo-cervical cord, are noted, but are rarer than those in which bulbar symptoms come on in a case of ordinary type. He had however seen cases of both types.

In consultation with Dr. S. Solis Cohen he had several times seen the case which had been reported by Drs. Spiller and Cohen, and he was also present at the autopsy and noted the marked atrophy which was visible to the naked eye in the cerebrum, pons, oblongata and cord. In the early history of this case some of its features reminded Dr. Mills of syringomyelia. Indeed the syndrome of the case as recorded included among its most marked features dissociated anesthesia and atrophy.

The most recent case of cervico-bulbar tabes seen by Dr. Mills was in May of the present year, 1901, having been sent to him by Dr. C. K. Ladd, of Towanda, Pennsylvania. This case was also seen by Dr. Spiller in consultation with Dr. Mills.

The patient, F. L. M., was a married man, 44 years of age. For eight or ten years he had suffered at times with feelings of soreness and distress in the abdomen, especially on the left side. His eyes began to fail three years before coming under observation, and the sight was decidedly blurred in the left eye in the early part of 1900. In November, 1900, he lost sight in the left eye entirely. He was seen by several Philadelphia ophthalmologists, among others by Dr. Behrens and Dr. Pyle at the Wills Eye Hospital in June and September, 1900. The records of the hospital show that he had vertical hemianopsia and contracted fields; red-green scotoma in the left eye; the left pupil was two-thirds dilated, the right pupil one-third; the right pupil responded to light and the left to accommodation but not to light; both nerve-heads were markedly hyperemic and the lower border obscured; the left macular region was almost gray; ptosis of the right lid existed. The patient gave a history of glycosuria, but no sugar was found at the hospital examination. Later it was recorded that the right pupil responded to light in accommodation and convergence; that vision in the right eye was normal; in the left the man could count fingers at one foot. Eight or ten months before examination he began to have cutting pains in the arms and chest. The pains came and went, and he described them as neuralgic, but of short duration. His descriptions indicated that they were tabetic pains. On examination it was found that neither eye could be moved freely into the external canthus, and that the eyes in movements

from right to left sometimes failed to act spontaneously. The right iritic reflex was nearly lost; the left pupil was dilated and irresponsive. He was totally blind in the left eye.

His voice was somewhat hoarse, and he said at times when swallowing that he was attacked with choking sensations and coughing. This was particularly the case with liquids. He was examined by Dr. Geo. C. Stout, who reported that his chief lesion was paralysis of the abductors of the left side. The left arytenoid cartilage and left vocal cord were immovable, while the right abducted and adducted freely. Examination for sensation showed marked retardation of the senses of pain and temperature in disseminated areas about the shoulder girdle, left chest, and left abdominal region. He complained much of frequent feelings of discomfort and distress in a bandlike area which reached around the left half of his trunk from about the position of the lumbar vertebrae to the median line in front. In this region were areas in which retardation to pain was present, although the sense was not lost. The Babinski response was not present. Knee-jerks were about normal. The biceps-jerk was well preserved on each side, the triceps-jerk was almost absent on each side. Station and gait were good, and the patient had no neuralgic or other pains below the waist. The bladder was unaffected. The man was very lean, but no distinct atrophy of special parts of the musculature could be determined. His tongue was wasted and showed no fibrillar tremor. He was tested for all forms of sensation with negative results. He could use his hands and fingers without special awkwardness or difficulty. If any ataxia were present in his upper extremities it was very slight. Smell, taste and hearing were not tested.

Dr. H. M. Thomas asked Dr. Spiller what the disturbances of articulation were. He had often thought that there ought to be very marked disturbances of speech in cases of tabes where the upper cervical and bulbar roots were affected. He did not hear any mention of such disturbances, and he did not know whether in similar cases ataxic disturbances of articulation analogous to the disturbance of motion in the limbs have been described.

Dr. Jacoby said he was rather surprised in listening to Dr. Spiller to hear the view expressed, which is certainly corroborated by his investigation in literature, that these cases are so infrequent. Dr. Jacoby had in his experience had no cases which had come to autopsy, but clinically cases of tabes beginning in the cervical region certainly did not seem to him to be very infrequent. He could recall two cases that

he had had under observation for years, and which he had been able to follow from their very beginning. Involvement of the trigeminus existed; both cases beginning with analgesia in the face. The cases were of gradual development, all the other symptoms of tabes beginning above and going down. This form of development he had seen not infrequently, so that now he was always suspicious in every case of involvement of the trigeminus alone without any other symptoms, that we may be dealing with a case of tabes superior. Another case that he had seen was one of involvement of the trigeminus with implication of the eighth nerve. Those were the only two symptoms, analgesia in the trigeminal territory and beginning deafness, which were present in the beginning, yet in no great number of years the case developed into one of pronounced tabes. Whether this "involvement" of the eighth nerve was actually a direct involvement of the nerve, or was a deafness due indirectly to trophic disorders in consequence of sensory involvement, it was of course impossible to say. Dr. Spiller had not spoken of any involvement of the eighth nerve in these cases, and he would like to hear from him whether he had found any such beginnings, whether early deafness is one of the frequent symptoms of a beginning high tabes. The point he wanted to emphasize is that clinically he did not think these cases are as infrequent as we would be led to expect from the report given.

Dr. Collins shared Dr. Jacoby's opinion concerning the frequency of high tabes, and, therefore, his astonishment to hear that Dr. Spiller had been able to find so few cases in the literature. In speaking of this matter with Dr. Dana and Dr. Hammond, Dr. Collins said he saw on the average about twenty cases of tabes a year in his private practice and that he had felt very sure that in this number there were two cases of high tabes. He was unwilling to abide by that statement now after having heard Dr. Spiller, but he was sure that he was entirely within his experience when he said that in a study of 100 cases of tabes, which he had recently made, in order to get some data bearing upon the prognosis of tabes, he had records of five cases of cervical tabes.

The second point in the discussion of the paper that he desired to refer to was that it seemed to him that in this case we have an example wherein the toxine of syphilis (or the poison occurring with syphilis) has had its destructive activity upon two sets of the fibers, motor and sensory; a condition which Dr. Collins thought is rarely seen. In the specimens submitted there seemed to be nearly as much degeneration in the motor as in the sensory neurones.

The third point in the discussion that he should like to make is that this case was in reality from a clinical standpoint one of bulbar paralysis. Leaving aside the fact that in all cases of tabes there are mental symptoms (in cases of high tabes the mental symptoms seem to be as it were transitional between the mental symptoms of tabes and those of general paralysis); the mental symptoms of this patient were very much those of true bulbar paralysis, in which disease mild mental symptoms are almost always present.

Dr. Sailer wished to call attention to a case he saw about two years ago in which one of the symptoms was so prominent as to lead to a variety of false diagnoses on the part of physicians who saw the patient. He was a man about forty, denied having had syphilis, had a number of healthy children, but admitted sexual excesses in youth. The disease commenced with ptosis and diplopia and he had distinct Argyll-Robertson pupils. He also had slight pains in the arms, exaggerated knee-jerk, some difficulty in micturition and loss of sexual power, so that there was not a great deal of doubt regarding the diagnosis. The symptom which apparently predominated over all the others was a series of laryngeal crises that occurred regularly every night and were supposed by more than one of the physicians that he had consulted to be due to aneurism of the thoracic aorta. The patient would have intense dyspnea, severe cough very much like the aneurismal cough, and remained sitting up supporting himself for several hours in the early part of each night. The attack would then gradually subside and he would be able to sleep the remainder of the night. Dr. Sailer would like to ask Dr. Spiller if the occurrence of laryngeal crises in this condition is more frequent than in the other forms of tabes.

Dr. Spiller in reply to Dr. Thomas's question in regard to disorders of articulation said there was no mention in the history of the case. He had not seen the patient himself and could not answer the question.

In regard to the point concerning the frequency of cervical tabes: Dr. Spiller had made the statement that it was not to be supposed that he had included all the *clinical* cases of cervical tabes. Some are alluded to in the literature in a cursory manner, and he believed that cervical tabes occurs more frequently than we might suppose from a study of the literature, but the cases are often incorrectly diagnosticated. The papers devoted especially to tabes do not mention many cases of cervical tabes. Those of cervical tabes with necropsy however are very rare.

In regard to the involvement of the eighth nerve, Dr. Spiller could not reply in positive terms, but he was not inclined to attribute to it very great importance in differentiating cervical tabes and other forms of tabes.

Dr. Spiller did not believe that laryngeal crises are more frequent in cervical tabes than in other forms. He had had patients who had had laryngeal crises with the ordinary form of tabes. Dr. Spiller said that the spinal root of the fifth nerve is not infrequently implicated in the ordinary form of tabes, as he had the specimens from four of five cases in which the spinal root of the fifth nerve was distinctly degenerated.

REPORT OF A CASE OF CHRONIC HEMIANESTHESIA OF
OVER EIGHT YEARS' DURATION, RESULTING FROM
DESTRUCTION OF THE CARREFOUR SENSITIF
AND LENTICULAR NUCLEUS.

(Abstract.)

BY F. X. DERCUM, M.D.,

AND

WILLIAM G. SPILLER, M.D.,
OF PHILADELPHIA.

The case was that of a mulatto who had been under observation at the Philadelphia Hospital with a right-sided hemianesthesia and right homonymous hemianopsia, persisting over seven years. The symptoms had followed an apoplectic seizure, the resulting motor hemiplegia being slight. The patient finally died of a second apoplexy, the lesion involving the right side of the brain. At the autopsy, an old cyst was found in the left hemisphere, implicating the *carrefour sensitif* and lenticular nucleus. The thalamus was intact, except in so far as it was implicated by secondary degeneration. The motor fibers in the internal capsule were merely slightly implicated. The affected area was studied by serial microscopical sections.

THE PHILADELPHIA NEUROLOGICAL SOCIETY.

November 26, 1901.

The President, Dr. James Tyson, in the chair.

Brown Séquard Paralysis.—Dr. Dercum presented a case of this form of paralysis resulting from spinal syphilis.

Dr. William G. Spiller said that the early appearance of the spinal symptoms after primary infection was of interest, as the man still had the syphilitic eruption on his body. The preservation of tactile sense was important. Probably in most cases of Brown-Séquard palsy, tactile sense is preserved on both sides of the body, whereas the temperature and pain senses are lost on the side opposite the lesion in the cord.

A Case of Myelitis exhibiting the Results of Coördination Exercises.—Dr. John K. Mitchell read a paper with this title, and presented the patient. (See page 34.)

Dr. Charles W. Burr remarked that he had seen this patient shortly after his disease had developed, and that the improvement since that time had been very great. The patient, at first, was very spastic, and walked with great difficulty; his knee-jerks were greatly increased, and he had ankle-clonus on each side, but no muscular wasting.

Dr. F. Savary Pearce said that he had seen this patient several times in the dispensary, and had been a witness of the great improvement that had occurred. On one occasion he had seen the patient crossing the street, and had observed the great difficulty he had in stepping up on the curb, on account of the extreme spasticity that existed. Dr. Pearce believed that the movements which had been described were largely responsible for the great improvement in coördination.

Dr. H. A. Hare inquired whether Dr. Mitchell had had the opportunity to investigate the question as to the frequency with which myelitis is a complication of typhoid fever.

Doctor J. K. Mitchell agreed with Doctor Hare that myelitis must be a very rare complication of typhoid fever. He had seen but one other case and that a doubtful one. He considered the present case a doubtful one, and he had been careful to state that the myelitis had followed typhoid instead of saying that it had been a consequence of the fever. It was to be noted that the myelitis had not appeared until at least two months of apparently perfect health had elapsed after the recovery from the typhoid. He thought it to be regretted that the spinal puncture had been unsuccessful, as an examination of the spinal fluid might at least have contributed some negative testimony.

Post-apoplectic Hemihypertonia.—Dr. D. J. McCarthy presented a patient with tonic spasms of the hand and foot on the same side, occurring at irregular intervals. This condition had developed after an apoplectic attack.

Dr. William G. Spiller remarked that this condition of post-apoplectic hemihypertonia was not well recognized. He had reported the first case in this country, and one other had been referred to by Dr. F. A. Packard. In these cases the contraction is not persistent. It varies in intensity from time to time. At one moment it

may be marked, and the next it has disappeared. There is not much motor paralysis in these cases. It is a condition of excessive muscular tonicity, and probably is the result of a lesion near, but not in, the motor tract within the cerebral hemisphere. The central motor fibers are irritated and not destroyed. The contractions are unlike those of athetosis or chorea.

Brain Tumor.—Dr. Wm. G. Spiller presented a patient with many of the symptoms of brain tumor.

Dr. Charles K. Mills thought it probable that this was a case of tumor in the motor region, cortical or subcortical. He wished to call attention to a diagnostic method which had been employed in a case under his care at the Philadelphia Hospital. The patient, a woman, had all the classical symptoms of brain tumor. Apparently, it was a large tumor, the central or initial portion of which was in the parietal region. Dr. G. E. Pfahler, one of the resident physicians, had made use of the X-ray apparatus and had obtained a shadow of the tumor in the region where it had been located by a study of symptoms and signs of focal disease. An operation for the removal of the tumor was done in this case, and the tumor was found in the region in which it had been believed to exist. A fuller report will be made later.

Dr. A. A. Eshner remarked that it might interest Dr. Spiller to learn that his patient had been at the Orthopedic Hospital before she came under his care. At that time there were present symptoms of right hemiplegia, with tremor in the upper extremity on that side. The case was at first regarded as probably hysterical in character, but subsequently it was concluded to have an organic basis. There was no record of an ocular examination.

Dr. Charles W. Burr said that in the early stage of many cases of brain tumor it was not surprising that the symptoms should be attributed to hysteria. In his own personal experience he had several times said that patients were suffering from hysteria when further examinations showed positive evidences of new-growth.

Dr. William G. Spiller remarked that it was easier for the physician who sees these cases in the advanced stage to make a diagnosis than for the one who sees them in the earlier periods. It was only after examining his patient several times that he became suspicious that the "tremor" might be a manifestation of Jacksonian epilepsy, and he had then urged her to come into the hospital.

Cholesteatoma of the Brain.—Dr. C. L. Allen presented a tumor of this character.

Dr. William G. Spiller said that these tumors are more likely to occur at the base of the brain, and they may exist without causing symptoms. He thought that it was a cholesteatoma because of its friability, its pearly luster, its position, the presence of numerous cholesterine plates, the large epithelial-like cells without nuclei, and the distinct layers of cornified cells. The recent paper of Dr. J. J. Thomas contains the description of three similar tumors.

Report of a Case of Aphasia.—This report was made by Dr. C. W. Burr. One peculiarity of the case was that only the important words of a sentence were spoken.

Dr. Charles K. Mills said that this patient had come into the hospital during his term of service, and he had made a somewhat elaborate study of his condition. The point of interest was as to the seat and extent of the lesion that had caused these strange speech phenomena. Dr. Dercum had a similar case some years ago, on which Dr. Mills thought a trephining operation had been done later.

Mary Putnam Jacobi had reported a similar case and others were on record. These cases impressed Dr. Mills with the fact that the cerebral speech zone, as he had long contended, was more complex than would be indicated by those who believe that we have simple percept centers, and motor speech and executive centers. He thought that these cases helped to show that between this region of percepts and of motor speech there is another region. He did not think that any lesion of the percept centers, or of the motor centers, or merely of the conducting tract between these simple centers would explain this case. It would be explained by some as a case of conduction aphasia. He was inclined to say that in this case the lesion was between what is termed the concept or naming center, and Broca's center—and that it was in this sense a conduction aphasia. This patient was never word-deaf. He doubted if it ever was a true case of word- or letter-blindness, at least of the "center" variety. He did not doubt that the man had apparent word-blindness and letter-blindness. The patient had not interference with the executive center for speech, and the evidence was not clear that Broca's center was involved, except as we recognise that all centers must have the axones which come from other regions come in contact with the cell-bodies of the region in question. A partial lesion of Broca's convolution could explain the case, but after all that is a conduction lesion in the proper sense.

An interesting fact was that this man in addition to the speech defect had had a number of attacks of monospasm affecting the face and arm and sometimes the leg, but the face most prominently. The region where the fibers cross from the temporal lobe to reach Broca's convolution is not known, but it is possible that they cross at the retroinsular convolution. A hemorrhagic or other lesion here might affect the neighboring region of the face.

Dr. F. X. Dercum thought that the explanation advanced by Dr. Mills was a most plausible one. A point in favor of conduction aphasia is that the patient preserved the simple associations. If these are started, he could go on as in naming the days of the week, the months, etc. It seemed to be a difficulty in bridging across the perceptive areas and the emissive area, rather than a lesion of either area. Just where the trouble was, was a matter of conjecture.

The case resembled one reported by the speaker some time ago. This was a case of hemiplegia in which a man had aphasia, total except that he had a fair memory for nouns. The patient was an engineer, and when asked as to his occupation would reply, "boiler, water, wood, coal, fire, steam." If asked as to his early life, replied, "farm, country, errands, work." He could also pick out words that were called for from a printed page.

Dr. William G. Spiller, who had seen this man a number of times, called attention to the fact that he had been carefully trained to speak. The case impressed Dr. Spiller very much like that of a child learning to speak. He thought that as a result of education the right speech center might have been developed, as the man was very young. In this case there had been no paraphasia, which is present in cases of sensory aphasia without motor aphasia.

Dr. Charles W. Burr said that he had tried in every way to prove that this man understood what he could not utter. When he saw C or D it was not that he understood but could not utter the sound, but the sign did not produce any idea whatever in his mind. X, B and O were the only letters that he could understand, and these he could pronounce. A few isolated words he read, not as words, but as

pictures. Dr. Burr believed that there was not only apparent word-blindness, but actual word-blindness. The patient gained somewhat under training, but when the training ceased, he lost what he had gained. He had now been training himself and was beginning to learn again.

The Direct Ventro-lateral Pyramidal Tract.—Dr. Wm. G. Spiller read a paper on this tract described by him in 1899, and stated that Stanley Barnes had recently found this tract degenerated in four cases of hemiplegia.

Dr. D. J. McCarthy said with regard to the tract reported by Russell, that it corresponded with a tract which he (Dr. McCarthy) found while working on a case of cerebellar lesion in Flechsig's laboratory. This tract corresponded very closely to that of Dr. Spiller, except that it was situated more anteriorly in the cervical region of the cord. It was followed up and found to have a lateral position to the olive. The presumption was that it went farther up through the pons. There were so many hemorrhages in the tissue that it was considered unadvisable to go on with the study of the case. Flechsig was of the opinion that this tract came from the cerebellum.

Dr. William G. Spiller remarked that there were a number of tracts situated in the ventro-lateral region of the spinal cord, and that unless they were followed to their origin, it could not be said what tracts they were.

CHICAGO NEUROLOGICAL SOCIETY.

November 21, 1901.

Heredity Cerebellar Ataxia with Report of a Case.—Dr. Hugh T. Patrick read a paper with this title. (See page 129.)

Dr. Lewellys F. Barker spoke of the functions of the cerebellum, referring to the development of knowledge on the subject and its present status. The views held by Haller, Rolando and Weir Mitchell (cerebellum as a center of muscular energy), by Flourens and Wagner (cerebellum as a center of coördinating voluntary movements), by Gall (cerebellum as center of sexual passion), and by Lussana (cerebellum as center for muscular sense), were successively mentioned. The careful studies and experiments of Luciani were taken up in some detail, and the opinions of the Italian investigator upon the sthenic, tonic and static action of the cerebellum reviewed; the researches of Ferrier, Schiff, Risien Russell and Thomas, were referred to. The weight of evidence at present is in favor of the view that the cerebellum is above all an organ upon the integrity of which the maintenance of normal equilibrium, under ordinary circumstances, depends.

An analysis of the cases in human beings in which the symptoms seen during life could, as a result of post-mortem examination, fairly be referred to atrophy of the cerebellum, shows that the cerebellar symptom-complex, as met with in man, corresponds very closely to that producible experimentally in animals.

The structure of the cerebellum was described at some length, the description being couched in terms of the neurone conception. The central neurones of the cerebellum, as well as the cerebellopetal and cerebellofugal conduction paths were discussed. The speaker expressed the opinion that a large part of the confusion existing among clinicians with regard to the nomenclature of nervous diseases depends upon the effort which is so often made to classify diseases according as the lesions accompanying them are distributed chiefly in one or another of the coarser macroscopic subdivisions of the central cerebro-spinal nervous system. The time was past, he thought, when we could satisfactorily use the terms "Diseases of the Spinal Cord," "Diseases of the Cerebellum," etc., as headings under which to group the special diseases. A much more rational classification is that based upon the conduction paths and sets of neurone-systems involved in the pathological process. Thus diseases in which the *systema neuronicum spino-cerebellare dorsolaterale* is degenerated affect the cerebellum as well as the spinal cord. The macroscopic subdivisions of the central system are so intimately connected with one another by means of neurone-chains and neurone-complexes that a separation of the diseases of one from diseases of another is as a rule futile. When one considers the large number of neurone-systems connecting the cerebellum with the spinal cord and rhombencephalon on the one hand and with the cerebrum on the other, the number of possible permutations and combinations as regards lesions is seen to be very great. Why should not the clinical picture presented in different cases of diseases affecting the cerebellar neurones be extremely variable? The wonder is not that we have different types of

disease which are somewhat closely allied to one another; it is much more that the clinical pictures presented in the various cases are so much alike as clinicians assert that they are. Possibly, when our methods of clinical differentiation have become more refined, we shall be able to speak more confidently than we can at present with regard to the exact neurone-systems involved in a given case, or series of cases.

Dr. Sanger Brown agreed with Dr. Patrick in asserting that Marie was not warranted in making the statements that he did; still in taking a broader view of the subject, and in accordance with the theory advanced by Dr. Barker, it was not a bad designation to refer to this disease as hereditary cerebellar ataxia. Marie was perhaps warranted in saying that in this disease the functions of the cerebellum were conspicuously involved. Whether the incoordination means an involvement of the cerebellum, Dr. Brown did not know definitely, but that was the popular idea entertained by the profession. He thought there was a marked difference clinically between the series of cases that he reported and the series first reported by Friedreich, particularly as to the onset and progress of the disease, and that it was well to make a clinical distinction. There might be a variety of types of the disease in certain families—that is to say, certain parts of the central nervous system would show at a certain age defects, and he did not think the time had come when it was safe to classify these lesions under very hard and fast lines.

Referring to the remarks of Dr. Barker, it was well established that the functions of the cerebellum, judging from experiments upon animals, could be vicariously performed fairly well. If certain neurones connected with the cerebellum undergo injury or degeneration, if the disease were limited to particular neurones, or if the cerebellum were mainly at fault, the patients would not become progressively more and more ataxic. In the series of cases reported by the speaker, the patients became progressively more and more ataxic. They became somewhat weak, but if they could use other parts of the nervous system, they certainly had years to get over that particular defect, but they became steadily worse.

Regarding the case of Dr. Patrick, Dr. Brown agreed with Dr. Patrick in many respects, although he was impressed with what James Collier and someone else stated in *Brain* some three or four years ago, in an elaborate report on diplegia, in which was reported a case similar to the one detailed by Dr. Patrick, only the cerebellum did not seem to be attacked so markedly in their case. He thought that case could be classified with other cases, if it were assumed that the functions of the cerebellum were more markedly disordered, or that the degeneration extended to the cortex of the cerebellum as well as the cerebrum.

Dr. Sydney Kuh pointed out some slight discrepancies which exist between the results of experimental work as to the functions of the cerebellum and clinical experience. The result of experiments would seem to show that the tendon reflexes are exaggerated after injuries to the cerebellum. It was known from clinical experience that there is no localization of a lesion within the cranial cavity which is so frequently associated with loss of the deep reflexes as a cerebellar lesion.

As to the influence of the vermis, when Dr. Kuh studied medicine he was taught that any part of the cerebellum might be destroyed without the manifestation of any symptoms, with the exception of the vermis. He had had occasion to examine the cerebellum of a

patient who had been under the observation of Professor Vierordt and his assistant for physical diagnosis. The patient was an old man, who came complaining of violent pain, and upon examination they found a tumor of the liver. The patient's age and appearance justified a diagnosis of carcinoma of the liver and he was under observation and treatment for a long time. Dr. Kuh was perfectly safe in stating that no such symptom as cerebellar ataxia or any gross nervous symptom could have been overlooked by these two gentlemen. The patient was treated with hypodermics of morphine. The case seemed absolutely hopeless, and nothing but symptomatic treatment was possible, and after one or two doses of morphine the patient became comatose, and died.

Post-mortem examination revealed, instead of carcinoma of the liver, secondary to a supposed carcinoma of the stomach, a large angio-sarcoma of the liver. On opening the cranial cavity an angio-sarcoma of the cerebellum was found. The tumor had destroyed practically every part of the superior vermis, the layer covering the tumor being hardly any thicker than an ordinary card. It did not seem to the speaker that very much of the function of that portion of the nervous system was preserved. It is true, the tumor, as it appeared at the necropsy was undoubtedly larger than it had been a short time before the patient's death, because death was largely due to hemorrhage into the tumor.

Dr. Kuh was particularly pleased to hear what Dr. Barker had to say regarding the present classification of nervous diseases. Even if we knew nothing about the neurones, or the anatomy of the nervous system, clinical experience alone should have taught members of the profession long ago that there is no such thing as peripheral, spinal or cerebral disease; and in spite of the anatomical researches extending back to the time when physicians hardly dreamed of a neurone that showed involvement of the nervous system in certain diseases, they are still classified in the same way.

Dr. Daniel R. Brower said it was impossible to make fine distinctions between several forms of hereditary cerebellar ataxia. However, this was still being done by some neurologists. He reported at his clinic at the County Hospital a year ago a case that manifested certain symptoms suggestive of hereditary cerebellar ataxia, for the reason that the cerebellar connections were in some manner interfered with. It was not an ordinary case, inasmuch as the reflexes were so exaggerated, the eye symptoms pronounced, and the gait more like the gait attributed to cerebellar disease; therefore, he called the case one of cerebellar ataxia.

Dr. Elbert Wing agreed with Dr. Barker in regard to the nomenclature of diseases. Physicians had been too exact in giving names to diseases, and in describing exactly the different pathological locations. A classification such as Dr. Barker had alluded to was necessary in clinical work. The old classification would be gradually abandoned, as more definite knowledge was obtained.

Dr. Hugh T. Patrick said, in referring to the remarks of Dr. Barker, that five or six years ago in writing an extended review of a monograph on hereditary cerebellar ataxia, he tried to express the same views that were presented by Dr. Barker, but did not do it so well, in that he tried to say, in all probability, the various diseases, including Friedreich's ataxia, were caused by progressive degenerative changes in nerve structures which were associated in function, and that the inception of the disease would vary in accordance with the particular set of neurones first involved. The clinical picture

varied in accordance with the direction in which the disease progressed, and its extent. This was the conception which is taken now of a variety of cases, including those in which the mental deterioration is considerable.

Dr. Barker stated, in connection with the progression of the symptoms in the cases suggested by Dr. Brown, beginning in youth, that the cerebellar disease ought to be compensated for largely by the vicarious activity of other parts. It must be assumed that disease is not stationary, and that, in all probability, group after group of neurones become involved, and those standing nearest in function and relation are most likely to assume vicarious function. He agreed with Dr. Wing in regard to attempting to localize or ascribe things exactly to one organ. On the other hand, he believed we shall not be far wrong in attempting to localize diseases more exactly than we have heretofore by systems of neurones and conduction-paths. An effort should be made in every case to correlate the clinical symptoms with changes in the neurone-systems. If it is said that such and such neurone-systems are involved, and such others are intact, then make careful autopsies and study the pathology from the same standpoint; data would then be accumulated which could not be obtained by present methods.

Periscope.

La Nouvelle Iconographie de la Salpêtrière.

(1901, No. 4, July and August.)

1. On a Case of Achondroplasia. R. CESTAN.
2. Some Remarks Upon Achondroplasia. E. APERT.
3. A Case of Family Rachitis. A. ZIMMERN.
4. Macrodactylia and Microdactylia. P. BEGOUIN and J. SABRAZES.
5. Myoclonia of the Type of Bergeron in a Degenerate Hysteric. R. BARNARD.
6. Experimental Researches Upon Fatigue Induced by Stimulation of the Olfactory Sense. CH. FÉRÉ.
7. Cerebral Tumor (Conclusion). E. DUPRÉ AND A. DEVAUX.
8. Supplementary Remarks Upon Dwarfs in Art. HENRY MEIGE.

1. *Achondroplasia*.—A paper containing many interesting facts on the subject of dwarfism together with a detailed clinical account of such a case observed in the nervous clinic at the Salpêtrière. The article is illustrated by a number of beautiful photographs and radiographs. Achondroplasia is a variety of dwarfism. A dwarf is an individual very much reduced in stature in comparison with other individuals of the same race, but with a correct proportion between the various portions of his body; in other words he is an homunculus. The question whether dwarfs can procreate their type is an interesting one, which is answered in the negative, according to the present state of our knowledge. The great majority of marriages between dwarves is unfruitful, or, if children happen to be born, they are normal. Dwarves can be divided into two groups: first, those in whom the abnormality is caused by a local trouble of the skeletal system, second, those in whom the abnormality is caused by a general nutritional disturbance. In the first group are contained the rachitic and achondroplastic dwarves. These cases produce normal children. In the second group belong myxedematous and hereditary syphilitic dwarves. It can be concluded then that the dwarf of the white race is a pathological product, who cannot transmit his special characteristics, obeying in this respect the law of the evolution of species.

2. *Achondroplasia*.—An account of two achondroplastics, illustrated by photographs and radiographs. These are two dwarves whose trunks are normal in dimensions, but whose extremities are much shorter than the normal. Achondroplasia is then a congenital affection, characterized by a considerable diminution in the length of the long bones of the extremities. The proportion of the head and trunk, formed by the short or flat bones, is very nearly normal. This is a congenital affection for the reason that the same relations exist at birth as in later life. Photographs of fetal achondroplastics are given to illustrate this important fact. From these observations it is an easy matter to determine the difference between achondroplasia and rachitism. In the latter, if the extremities are diminished in length, it is not due to the lack of development of the

long bones, but to the fact that they become curved, softened and knotted. Rachitics can become micromelics, as is found in achondroplasia, but in rachitism the shortness of the extremities is acquired through the malformation of the osseous axis, and not simply through the reduction in length of this axis. In addition, in rachitics, the malformation is not limited to the extremities alone, but is found also in the head, thorax and trunk. The intelligence of achondroplastic dwarves as compared to the rachitic dwarves is greatly in favor of the former. The former are, as a rule, normal, while the latter often show a markedly inferior mental development. In regard to the cause of the deformity in achondroplasia, it is probable that it lies in the insufficiency of the formative material, the place of which is taken by the epiphyses or intradiaphyses cartilages. The localization of the process is confined to the long bones. Shortening takes place without thinning of the bone; for this reason, the term achondroplasia is well selected. It means a defect in the development of the cartilage.

3. *Family Rachitis*.—A study of a family of eight members, five of whom have been attacked by osseous dystrophy. They all show typical rachitic deformity. A short clinical history of each one is given, together with a family photograph.

4. *Macrodactylia and Microdactylia*.—Three observations of malformations of the fingers. The article is illustrated by photographs and radiographs.

5. *Myoclonia*.—A case of hysterical myoclonia in a man. Alcoholic paternal history. Psychical and physical stigmata of degeneration. Absence of ordinary hysterical stigmata. Tremor, astasia-abasia, simple chorea, fibrillary and electric chorea. This group of symptoms followed a psychical shock at the age of seven years. This case is of interest because of the effect of treatment and on account of the pathogenesis of the disease. Tartar emetic was administered according to the method devised by Bergeron, causing the disappearance of the myoclonic symptoms. This agent is in no sense to be regarded as a specific; its use is to reinforce suggestion. The method employed is as follows: The patient was told that he was to be given a remedy which would surely cure the spasmody movements. The dose at the beginning was 5 cg. After one hour he vomited and the spasms disappeared. The next day he was given 10 cg. and so on for two or three days. After this, suggestion under hypnotism. As a result, the myoclonic spasms disappeared, although the other hysterical symptoms were not affected.

6. *Cerebral Tumor*.—On account of the complexity and variety of the experimental data, this article cannot be abstracted.

SCHWAB (St. Louis).

Archives de Neurologie.

(1902, vol. 13, January, No. 1.)

1. Spasmodic Paraplegia Resembling Section of Cord due to Compression of Dorsal Cord. E. BRISSAUD AND E. FEINDEL.

2. Extension and Its Application in Treatment of Nervous Disease. P. KOUINDJY.

3. Spinal Meningeal Hemorrhage above the Dura. A. COCHEZ.

1. *Spastic Paraplegia*.—The authors report a case with autopsy in support of the theory that a compression of the spinal cord acting like a ligature and transforming the cord tissue into a true cicatrix can cause a spastic paraplegia. They freely admit that a section of the cord when sudden and complete such as is produced by certain

traumatisms results in paraplegia with loss of reflexes and total anesthesia which is flaccid and always remains flaccid. But the present case proves that when the section is slow instead of flaccidity, the type of the paralysis may be spastic. The case is as follows: A patient had three attacks of paraplegia due to Pott's disease. The first lasted seven or eight years, was accompanied with pain and was cured. The second attack was accompanied with subjective disturbances of sensibility and was spastic in type. It also was cured. The third attack coming on sometime later was characterized by objective disturbances of sensibility and spastic paraplegia. This attack proved fatal, the symptoms remaining practically the same until death. The autopsy showed that the cord was practically converted into cicatrical tissue at the level of the compression.

2. *Extension and its Application in the Treatment of Nervous Diseases.*

—Kouindjy reviews in the introduction to this able article the various methods of extension by suspension, and elongation that have been employed in the treatment of ataxia and other nervous diseases, and points out certain difficulties and drawbacks attending these methods that accompanied the very appreciable benefits derived from them, and then proceeds to describe and illustrate by photographs the apparatus of extension by means of an inclined plane which he has used with great success, and with less unpleasant attending condition. His method of procedure is to place the patient on a plank and to apply Sayre's apparatus as it was modified by Motchoutkwski and manufactured by Chazal. The patient's head rests sometimes on the board and sometimes on a little pad, and is placed between the two posterior branches of the chin piece. This is a detail of importance. Mr. Jacob made a hollow in the board to accommodate the patient's head. The occiput in this case is below the surface of the plank, and the strain comes chiefly in the nape of the neck which is contrary to the directions of Motchoutkwski who holds, rightly, that the strain should be born by the chin. When Sayre's apparatus is applied the patient is told to let himself slide as far as possible, so as to stretch himself completely in a horizontal position, and he is drawn down a little to help him to a better position. As soon as the apparatus is adjusted, the plank is raised to an angle of 30°, and allowed to remain for ten minutes when it is raised 5°. In successive treatments, the angle is increased gradually to an angle of 90°, except in cardiac and obese cases where the angle never exceeds 60°. The average treatment lasts fifteen minutes, never more than twenty. The value of the inclined plane is noticeable in that no injurious effects have ever been seen in children and in cardiac patients; the patient is not frightened when the plank is raised to an angle; and if at first he appears timorous he is told to rest his hands on the handles at the sides of the plank. But it is rare that this manœuvre is resorted to, and when it is, it is but for a moment. This treatment by the inclined plane has been followed at short intervals of one and two days or bi-weekly, for a year and a half without any sign of weakness in the patient, and with marked benefit. And in 3,000 or more suspensions made with the inclined plane, there was in no case any of those troubles produced by suspension by hanging or elongation. The only inconvenience noticed is the pulling on the muscles in the nape of the neck, but this disappears after a few moments' rest. The ease with which the treatment is given permits its use in cases where suspension or hanging are distinctly contraindicated. The author quotes the case of an ataxic cardiac patient

who at the end of a year of this treatment was able to walk alone, and in a year and a half was going about the streets of the town. The article is to be continued.

3. *Spinal Meningeal Hemorrhage Above the Dura*.—Cochez describes an interesting and unique case of a man forty-five years of age, who had been a great traveler and had indulged in alcoholic excesses, taking as much as fifteen to twenty glasses of absinthe a day. Although he was a strong man, he had had a fall, due to his intoxicated condition, and entered the hospital covered with bruises on various parts of his body, and palsy of his lower limbs, trembling and with cerebral torpor. One day he sank down suddenly while walking, and was unable to get back to bed without help. He had incontinence of the urine and feces; also complete paraplegia with hallucinations and cerebral depression, and at the end of thirteen days expired quietly. The autopsy showed a large abundant spinal hemorrhage outside of the dura mater. How can one explain this hemorrhage in such an unusual place, and when did it occur? Cochez asks. We willingly admit, he replies, that the traumatism was the determining cause of the hemorrhage, but that alcoholism and Bright's disease played the rôle of predisposing causes. As to this ictus occurring unexpectedly during his sojourn in the hospital, and being followed by complete paraplegia, was it not due to a new hemorrhage compressing the brain more completely, and by obstructing the free circulation of the cerebrospinal fluid determining the cerebral symptom which progressed slowly until death?

PEARCE BAILEY (New York).

Tidsskrift for Nordisk Retsmedicin og Psykiatri.

(1901, Vol. I, Nos. 1 and 2.)

1. Medico-legal Aspects of Marriage. H. A. TH. DEDICHEN.
2. History of Legal Medicine in Denmark. S. HANSEN.
3. On Some Cases of Sadism. C. GEILL.
4. Identification by Means of Tatooing. C. GEILL.

1. *Medico-legal Aspects of Marriage*.—Upon marriage and its consequences from a medico-legal point of view, and principally from the point of view of medical jurisprudence, taking into special account the discretion of the medical profession and its right to silence. (The résumé will follow in the next number, when the memoir will have appeared entirely.)

2. *Upon the History of Legal Medicine in Denmark*.—The author points out why, before the organisation in 1740 of the Collegium Medicum, the province of medicine in Denmark had attained only a very restricted and primitive development, a matter of some historic interest. Indeed, the legal medical operations were not always performed by physicians of regular standing; perhaps by those who connected themselves more or less with the University, but more often by "Barber surgeons," practitioners who possessed great experience and practical capacity against which the authorized savants could not measure themselves. These latter did not care to risk daily tests and proofs, recognizing their incompetence, but they reserved their forces for the office of medico-legal counsellors to the crown. In support of this, the author cites cases in which the autopsy and examination of a person accused of syphilis had been made from the legal point of view by these barber surgeons.

3. *Cases of Sadism*.—Three legal cases in which young, degenerate or imbecile individuals were guilty of pseudo-sadism.

4. *Identification by Tatooing*.—Tatooing is very significant for the identification of corpses as it often includes the entire name of the individual who possesses the mark, the initials, date or place of birth or some professional emblem. Among 1,000 tatooed individuals the author has found 730 such marks which assisted in identification. Of the professional emblems found (89), the special mark of the baker has most often been found (17), also the blacksmith's (13), and the butcher's (12). Tatooing assists as well in the identification of criminals. Among 16,000 Danish criminal men, 662 (41.38 per cent.), had very distinct marks, while 202 bore indistinct tracings of experiments during youth. It is to be desired that in prison and police stations complete lists should be made out of the tabooings upon criminals, especially young prisoners who have not attained full development and whose measurements, according to M. Bertillon, cannot therefore be depended upon. As many criminals carry tatoo marks on places not covered by clothing, the marks may often serve in cases of violence or law-breaking in the recognition of the guilty ones. Among 1,600 criminals, 267 (16.69 per cent.), had marks very easy to recognize on their hands. Compulsory tatooing of all criminals, such as has recently been proposed in Germany, must be discouraged from humanitarian motives.

JELLIFFE.

Annales Medico-Psychologiques.

(1902, Vol. 60, No. 1. January, February.)

1. Psychoses among the Jews. PILCZ.
2. Suicide and Insanity. VIALLON.
3. Language of Idiots. L. MAUPATE.
4. Propagation of Tuberculosis through the Stools. D. ANGLADE.
5. Protection of the Fortunes of Patients Confined in Insane Asylums. S. GARNIER.

1. *Psychoses among the Jews*.—This subject is discussed by the author, under two headings: (1) Is there a predisposition to mental diseases among the Jews? (2) If so, to what special psychoses are they subject? The former question is answered in the affirmative; the answer to the latter is given in the following conclusions: (1) Psychoses due to alcoholism are rare among the Jews; (2) there is no preponderance of psychoses due to accessory causes, such as intoxicants, of exogenous or endogenous origin, changes in the vessels, etc.; (3) precocious dementia, and dementia following an acute psychosis are frequent among the Jews; (4) general paresis occurs more frequently in this race than in others; (5) the Jew is predisposed to psychoses from hereditary degeneracy.

2. *Suicide and Insanity*.—This study continues work done in last month's issue and cites further observations as follows: Menstruation influences suicidal tendencies either by exaggerating a mental condition already existing or producing at the menstrual period an impulse to suicide; amenorrhea and dysmenorrhea have a like effect in this respect. Any affection of the genital organs as well as the periods of puberty, the menopause and pregnancy may excite the disposition to self-destruction. Religious excitement has been, from the earliest history of Christianity, a potent factor in the voluntary sacrifice of life, as shown by the religious fanatic who, through public confession of faith, subjected himself to death by torture, hoping thus to gain the kingdom of heaven. Modern instances are seen in the conditions of megalomania, dementia, paresis, degeneracy, etc., in which the suicidal impulse is generally due to hallucinations, such as

the conception of celestial voices commanding self-destruction, etc. Religious lipemania is among the most frequent causes of suicide, in which the patient is impelled to commission of the crime through a sense of unworthiness to live. Homicidal and suicidal tendencies are often associated, as instanced by religious maniacs who murder parents or children to release them from a life of sin and procure for them celestial beatitude, subsequently committing suicide themselves.

3. *Language of Idiots.* The continuation of investigations described in last month's number is here given. In a limited number of idiots speech is altogether monosyllabic; in most cases there is a tendency to expression in words of two syllables, more complex terms being reduced to this form. The consonants are more difficult of pronunciation than the vowels, hence they are frequently suppressed. Inability to pronounce certain letters is common; this condition is known as mogilalia. Difficulties in pronunciation of r, l, g, or s, are termed respectively rhotacismus, lamadismus, gammacismus and sigmacismus; if these sounds are replaced by others, the terms pararhotacismus, paralamadismus, etc., are used. Of these varieties of mogilalia, the most common are sigmacismus, and parsigmacismus. These peculiarities of speech may be so multiplied as to render the idiot's language incomprehensible; to such language the term hottentottismus has been given. Comprehension precedes speech in the idiot as in the infant. Eight in sixty idiots comprehend absolutely nothing; between this condition and comprehension of long sentences and elementary reasoning, there exist varying degrees of intelligence. It is probable that the idiot, like the infant, first understands sentences, before individual words composing them are recognized; gestures and intonations assisting comprehension.

4. *Propagation of Tuberculosis through the Stools.*—This subject is thus summarized: (1) Tuberculous infection of the intestines is the rule in pulmonary phthisis; (2) it may be primary or secondary; (3) chronic diarrhea of the insane is almost always a symptom of tuberculous enteritis; (4) bacterioscopic study of this enteritis shows that it is due to an active bacterial process, the bacilli being diffused through the intestinal contents; (5) tuberculosis is propagated through the stools of tuberculous patients, and such stools are an especial menace in insane asylums; (6) all tuberculous stools should be disinfected; 30 seconds contact with carbolic 50-1000 will destroy the bacillus; (7) prophylactic measures against propagation of tuberculosis consist in isolation of tuberculous patients, and care of the expectoration and stools.

5. *Protection of the Fortunes of Patients Confined in Insane Asylums.*—This article is a continuation of a lengthy exposition concerning protective measures in the financial interests of patients confined in insane asylums; what such measures are, and what they should be.

R. L. FIELDING (New York).

Neurologisches Centralblatt.

(1902, Vol. 21, No. 2, January 16.)

1. Contribution to Periodical Insanity. ENNEN.
2. The Topography of Cortical Degeneration in General Paralysis of the Insane, and Its Relation to the Association Centers of FLECHSIG. KARL SCHAFFER.

1. *Periodical Insanity.*—Three cases of periodical insanity are here reported with clinical details, without any attempt at classification.

2. *Cortical Degeneration in General Paresis.*—Schaffer gives a very

careful study of the brains from two cases of general paralysis and one case of tabo-paralyse (tabes with general paralysis). Sections through the entire brain were stained by the Weigert-Wolters method. The degeneration was very intense in those areas corresponding to Flechsig's association centers—*i.e.*, the frontal, parietal, post-central, insular, the second and third temporal gyri and the gyrus fornicatus. He concludes that his findings support Flechsig's theories, and that the cortical degeneration of paresis is not an irregular, diffuse process, but a regular, localized, elective or selective affection of the cortex.

D. J. McCARTHY (Philadelphia).

MISCELLANY.

DIAGNOSIS OF TUBERCULOUS MENINGITIS. R. Breuer (Wiener klin. Rund., October 9, 1901).

The author briefly reviews the methods. A result after injecting the aspirited fluid into guinea-pigs takes too long to be of value. It has been pointed out that cerebrospinal fluid forms an excellent culture medium for the tubercle bacillus, but to set the fluid aside in the incubator and await a multiplication of the germs would also demand patience. The agglutination test is of no value and the finding of a preponderance of mononuclear leucocytes is not always conclusive for tuberculosis. A direct examination of the stained sediment of the fluid is generally negative, but when done properly has proved positive in the seventeen cases examined by the author. The fluid must be collected in test-tubes each containing 4-5 c.c. and these set aside, care being taken not to shake them. After 3-6 hours a very fine coagulum, containing the cellular elements with the bacteria, forms, while the fluid itself will be absolutely clear. An examination of the coagulum will almost always be crowned with success. In a second article in the same number, J. Nonath discusses the sero-diagnosis of tuberculous meningitis. Five to fifteen drops of a specially-prepared, homogenous culture were mixed with one drop of cerebrospinal fluid. The results were noted after 8-24 hours. Of four cases in adults there was a negative reaction in one, a partial one with a dilution 1 to 5 twice, and a complete one with a dilution 1 to 5 once. In two cases in children the reaction turned out negative. The clinical value of the method thus is slight.

JELLIFFE.

DIFFUSE DISEASE OF THE BRAIN AND CORD, SIMILAR TO MULTIPLE SCLEROSIS, WITH AN ESPECIAL ETIOLOGY. R. v. Jaksch (Wien. klin. Rundschau, No. 41, p. 729, 1901).

In a study by Lotsch, made upon the cases of multiple sclerosis in the service of von Jaksch, the etiological factors of most significance were found to be previous infectious diseases and trauma. The author of this article adds three more cases which are especially notable as all of them showed the same progress, and appeared at the same time, and had the same etiological factors. Although these three cases are to be classed as multiple sclerosis, yet they differ from the typical ones in individual symptoms. Nystagmus and intention tremor were either not present at all or were found only temporarily. Likewise pupillary changes, which are seldom found absent in the course of a typical multiple sclerosis, were not present at all. In cases I and II an inability to walk backwards was one of the most striking symptoms, and in the latter case the Romberg symptom was present for a short time. The etiology of all three cases is of special interest. The patients worked in the same factory and were employed in performing the same kind of work. They were engaged in this work for a period of six, nine and eighteen months, respec-

tively. It consisted in drying regenerated hyperoxide of magnesium mud. The process is as follows: the mud through pressure is freed from calcium chloride, washed with water, and dried in the form of bricks, which hold 60 per cent. water, 2 per cent. calcium chloride, and rectified superoxide of magnesium. These are then placed upon large plates which are heated to 100°. During this process, the workers have to endure great variations of temperature, and it is to this, more than to the presence of the magnesium in the atmosphere, that the author attributes the causation of the disease. In other words, cold is a traumatic factor in the etiology of these cases.

SCHWAB.

MULTIPLE HEMORRHAGES IN GENERAL PARESIS. Frey (Allgemeine Zeitschrift für Psychiatrie, 1901, lviii, 4, S. 632).

The author gives the clinical history, and the autopsy revelations, in the case of a male paretic of forty-two years, who died after a seizure, under symptoms of exhaustion, having passed blood in his urine and stools, and having vomited it. There were hemorrhages in the skin, the mucous and serous membranes, the kidneys, the heart muscle and the brain substance. He declares himself an adherent of the opinion that multiple hemorrhages in general paresis, are probably due to trophic changes in the vessel walls, resulting from the disease of the brain cortex.

ALLEN.

ZUR KLINIK DER ANGIOSCLEROTISCHEN PAROXYSMEN MYASTHENIE ("Claudication intermittente," Charcot's) UND DER SOG. SPONTANEN GANGRÄN (Angiosclerotic Paroxysmal Myasthenia and So-called Spontaneous Gangrene). H. Higier (Deutsche Zeitschrift für Nervenheilkunde, vol. xix, 5 and 6, s. 438).

After a critical review of the subject based upon the literature and what he has himself observed in twenty-three cases of which he has notes, the author feels justified in drawing the following conclusions:

- (1) The most suitable name for the disease is "Angiosclerotic paroxysmal Myasthenia."
- (2) The disease in general, uncommon, is relatively frequent in Russia, Poland and the Lithuanian Povinces.
- (3) The great majority of those affected are Hebrews.
- (4) In females the disease is eruptional.
- (5) It affects individuals of young or middle age, from the twentieth to the fiftieth year.
- (6) Neuropathic disposition and congenital weakness of the peripheral circulatory apparatus seems to play the chief rôle in its production.
- (7) Overuse of the legs, wetting, thermal influences, alcoholism and nicotine hasten the outbreak of the disease, syphilis and gout play no, and diabetes only a very limited part in its etiology.
- (8) The peculiar angiosclerosis localizes itself most commonly in the legs and not infrequently symmetrically.
- (9) The chief symptom, pain, presents itself in three forms: (a) pain on walking, along with paroxysmal myasthenia or intermittent limping; (b) permanent pain appearing during rest as painful paresesthesia, characteristic of the advanced stage of the disease and exceptionally dominating the picture for years in the absence of myasthenia; (c) pain accompanying gangrene.
- (10) In the cases of diffuse angiosclerosis of the upper and lower extremities, a characteristic symptom-complex on the part of the general condition, and of the psychical sphere, occasionally follows

the occurrence of ulceration and gangrene—improperly called spontaneous gangrene.

(11) The disease sometimes runs on for years under the appearance of a vasomotor or sensory neurosis, without recognizable vessel change.

(12) Together with organic narrowing of vessels, functional vasomotor disturbances play an important part in favoring gangrene.

(13) Most obscure from the point of view of differential diagnosis are those cases in which along with vessel obliteration and myasthenia, typical symptoms of Raynaud's disease, or erythromelalgia, are present.

(14) There are probably two chief groups of this peculiar endarteritis: (a) the more common with primary location of the disease process in the vessels; (b) the less common with preceding nerve degeneration (so-called neurotic angiosclerosis).

(15) A rational hygienic and dietetic regime (especially mental and physical rest) may prevent the occurrence of the gangrene, fatal occasionally and at best producing deformities seriously interfering with the usefulness of the patient.

(16) In doubtful cases with intense pain and tendency to ulceration, the less radical measures of nerve stretching, tension or restriction used by Chipault and his school in perforating ulcers, seem worth a trial.

ALLEN.

AN INTRODUCTION TO THE PSYCHOLOGICAL STUDY OF BACKWARD CHILDREN. William B. Noyes (N. Y. Medical Journal, Vol. lxxiii, 1901, No. 25, June 22).

The author classifies mentally defective children as follows: (1) Those in whom the faculty of perception is deficient, and this includes all those who have been born defective in their special senses, the blind, the deaf, and the dumb, who can only develop mentally by some vicarious education of other faculties. In the extreme types we have the so-called idiots by deprivation, who are idiots simply because they lack certain special senses; (2) those children who, in spite of possessing all special senses and power of perception, lack the power of attention, without which the most painstaking instruction or frequently-repeated suggestion is without result. The third class is one which is characterized, not by defect of special senses or the power of attention, but by defect or disease of the will. Of this, the case reported is in some respects an example; (3) disease of the will may be classified as follows: (a) Impairment of the will by defect of impulse, varying from sluggishness or irresolution, not uncommon among children, to extreme types of what is called abulia, or "idiocy of the will," which is a complete lack of will power and decidedly rarer; (b) the will may be impaired through a morbid fear or a fixed idea: among children this is usually regarded by parents as a silly notion of an imaginative child and not anything serious, and in reality it seldom persists long in any one definite form. In adult life these phobias, or minor fixed ideas, are common enough; (c) the will may be impaired through some excessive impulse which may be instantaneous in its onset or something more gradual; (d) there may be impairment of the will due to a lack of power of attention. This may be congenital, as in the case reported, or acquired, as seen in various neuroses and psychoses; (e) the will may be limited or practically destroyed by being controlled by the caprices of hysteria; (f) the will

may be in abeyance in conditions allied to hypnotism which are seen in childhood, chiefly in connection with morbid religious revivals and similar mental excitements; (4) while attention and will are in a way associated with motor functions, the higher, or cognitive, powers of the mind seem more related to the sensory functions. A child may be normal in perception, attention, and will, and yet be decidedly deficient in reasoning faculties; (5) there are cases where the child has normal senses, power of attention, will power, and reason, but fails in memory, or the power to recall what may have been acquired in the near or remote past.

SMITH.

UEBER DEN NORMALEN GROSSZEHENREFLEX BEI KINDERN (On the Normal Great Toe Reflex in Children). Fritz Passini (Wiener klinische Wochenschrift, No. 41, 1900).

The "toe phenomenon" first described by Babinski two years ago has attracted much attention and has been verified in part by well-known neurologists.

Passini found it present in older children with cerebral palsy, congenital hydrocephalus with spastic paresis of the lower extremities and in spinal diseases such as compression paralysis from caries of the vertebra. In tubercular meningitis he found it had a prognostic value as in a number of cases the flexion turned into extension one or two days before death. Babinski called attention to the fact that there was normally an extension of the toes on plantar irritation in infants which changed to the normal flexion type of the adult when the child began to walk. The author made a number of investigations and found that the flexion type of the great toe reflex normally appears in the fourth quarter of the first year. The use of the feet in walking does not produce the reflex, but is dependent upon the development of the pyramidal tracts. Pathological changes in the pyramidal tract in older children and adults cause a return to the infantile form of the plantar reflex.

JELLIFFE.

UEBER DEN KLINISCHEN VERLAUF UND DIE PATHOLOGISCH-ANATOMISCHEN VERÄNDERUNGEN EINES SCHWEREN DURCH HEMIPLEGIE BULBÄRE UND PSYCHISCHE STÖRUNGEN AUSGEZEICHNETEN FALLES VON BASEDOWSCHER KRANKHEIT (Concerning the Clinical Course and the Pathologico-Anatomical Changes in a Severe and Extraordinary Case of Exophthalmic Goiter, Characterized by Hemiplegia, and Bulbar and Mental Disturbances). Dinkler (Archiv. für Psychiatrie und Nervenkrankheiten, xxxiii, 2, 1900).

The number and severity of the nervous symptoms in exophthalmic goiter suggest an anatomical basis for the manifestations on the part of the nervous system, but no constant lesions have yet been described, the various nervous changes reported from time to time having been more in the light of complications or incidents. The case which is made the subject of this paper presented symptoms attributable to changes in the liver, kidneys, heart, thyroid gland, thymus, nervous system and body musculature. Besides the struma, cardiac palpitation and exophthalmos, the following symptoms were worthy of note: strong arterial pulsation, roaring and vascular murmurs over the thyroid, systolic mitral murmur with dilation of both sides of the heart, Stellwag's, Graefe's and Moebius' signs, tremors of the hands, diminution of the electrical resistance of the skin, tendency to cry and to laugh, hasty speech, marked acceleration of all voluntary movements, hyperhidrosis, falling of the hair, diarrhea and

vomiting. The patient revealed an entire change of character, suffered from hallucinations of all senses, became egoistic, disorderly, wasteful, and untidy. These mental changes were followed by symptoms on the part of the motor system, beginning with light twitching of the left side, both in limbs and face, and similar to the movements of chorea. After a short time these movements became stronger and coincidently there was marked weakness of the muscles, resulting in pronounced hemiparesis with diminution of the irritative movements. The hemiparesis was progressive, resulting in flaccid paralysis of limbs, face and tongue, and was followed by bulbar symptoms. The latter were indicated by loss of facial expression, nasal speech, and regurgitation of food, of variable constancy and suggesting in their character and course myasthenia pseudo-paralytica.

The author presents a careful and exhaustive description of the histological examination. The cerebral cortex of the central convolutions of both sides was markedly diseased. The ganglionic cells in numerous regions were changed, and in the right motor region the degenerative foci were so numerous and pronounced that in the stained specimen they were visible to the naked eye. There was also plainly marked descending degeneration through the bulb and into the cord, with involvement of the nuclei of the cranial nerves, especially of the facial and hypoglossus.

The author compares the symptoms with the pathological conditions and believes that the completed case is in accord with the assumption by Moebius of an intoxication as the cause of the disease. He believes that with careful means of examination for the nervous system changes may be found in the lighter cases, and he prefers Nissl's method over that of Marchi. He also discusses the relations of the thymus to exophthalmic goiter, and argues that the functions of the thymus and thyroid and accessory glands are analogous, and that the one may be affected in one case and the other in another, or all may be involved in the same case. The difficulty of determining this point and the inaccessibility of thymus are against surgical procedures, and explain the failures of surgical operations undertaken for the cure of the disease. As long as it is impossible to determine the size of thymus or the existence of accessory thyroid bodies in the individual case, so long will the results of operative treatment be simply a matter of chance.

H.

KLINISCHE BEITRÄGE ZUR KATATONIE (Clinical Contributions to Katatonie). Schüle (Allg. Zeitschrift für Psychiatrie, 1901, Iviii. s. 221).

In a critical digest of the subject the well known Ilenau alienist considers at some length the symptoms which have been brought together to form the clinical group katatonia, discusses their probable method of production, and their occurrence in connection with other forms of mental disease as well as a distinct clinical type, and attempts some estimate as to their relative importance in diagnosis and prognosis. He concludes that there exist: (1) A group of cases in which the katatonic symptom combination occurs idiopathically and persists from beginning to end; true katatonia, and acute primary dementia, with negativism and characteristic motor and muscular symptoms; (2) a group of cases in which katatonic symptoms, accompany, break in upon, or conclude other psychical disturbances, generally certain confusional or paranoid processes of acute, subacute, or chronic course, whose previous history would cause no sus-

picion that such symptoms would appear. In such cases the katatonic symptoms may after greater or less duration, entirely disappear, or may persist and modify the further course of the disease. That a certain number of cases of katatonia recover is admitted. The author after discussing the individual symptoms concludes that it is impossible to draw from the presence or absence of any of them, positive prognostic conclusions, though some are decidedly more favorable than others. More promising he regards the study of the psychopathological fundamental signs and an effort to learn their relation to the profundity of the cerebral affection. He urges the necessity for continued study of the results of psychophysiological experimentation and their comparison with psychopathological manifestations, and expresses the hope that by so doing we may some day gain a standard of comparison, for mental symptoms, just as for instance we now estimate the character and extent of disease of the lungs by comparing the results of physical examination of the normal and of the affected organ, a sort of "psychical auscultation," as he expresses it.

ALLEN.

PSYCHOSES OF THE MENOPAUSE. J. Chapin (Philadelphia Med. Journ., Aug. 25, 1900).

The author endeavors to show that the danger of insanity beginning during the menopause has been exaggerated. Out of 8,320 women admitted into various institutions, only 188 were specified as becoming insane at the menopause, nor was it clear how many out of the 188 went mad through the special changes in the genital tract at that period of life. The statistics of the Pennsylvania Hospital show that between the ages of forty-five and fifty-five, representing the usual range of the menopause 975 men and only 876 women were admitted into that institution. S. Weir Mitchell, in his analysis of 3,000 cases of melancholia, shows that the exact percentage of cases between the ages of forty-five and fifty was 20.2 in men and 21.4 in women, the difference being very, very slight, and once more not due, on any distinct evidence, to the local changes of the menopause. The dread or risk of insanity at the approach of the menopause in a woman ordinarily of sound mental and psychical health and inheritance has no better foundation than a popular delusion based on borrowed fears.

JELLIFFE.

Book Reviews.

THE DIAGNOSIS OF NERVOUS AND MENTAL DISEASES. By HOWELL T. P. PERSHING, M.S., M.D., Professor of Nervous and Mental Diseases in the University of Denver; Neurologist to St. Luke's Hospital; Consultant in Nervous and Mental Diseases to the Arapahoe County Hospital; Member of the American Neurological Association. P. Blakiston's Son & Co., Philadelphia. \$1.25.

This is a small volume constructed on practically an entirely new principle in medical diagnosis and is deserving of much attention, especially from the general practitioner. The author says that he has applied the principles of systematic science, and has devised a series of keys whereby a given lesion may be definitely located. From what we know in the systematic study of botany and of zoology such keys are not only means to an end, but are distinctly beneficial in impressing the mind of the student with broad, general lines of differentiation. Much the same purpose will be subserved by the present volume, and we welcome it as a departure from the older modes of presentation of the subject. Such a work should, we believe, be in every doctor's library, and when its reasonable price is taken into consideration there is no good reason why it should not be.

JELLIFFE.

DIAGNOSTIC DES MALADIES DE L'ENCÉPHALE. Par le Docteur Grasset. Les Actualités Médicales. J. B. Bailliére et fils., Paris.

This volume of this short, serviceable and practical series of manuals is the last of three of the same author, two of which have already been noted in these columns.

In his "Clinical Anatomy of the Nervous System" and the "Diagnosis of the Diseases of the Spinal Cord," Dr. Grasset outlined his general plan of procedure. For the diseases of the brain as for those of the cord, similar modes of description have been adopted.

He outlines in some detail the main syndromes of encephalic lesions, with the paryses, convulsions, contractures, and anesthesias. Following this is a chapter on diagnosis of organic hemiplegia, another on central lesions of the visual apparatus; and others on the control of orientation and equilibration, the functions of language and its abnormalities, aphasia, paraphasia, anarthria, dysarthria, etc.

Taken all in all the volume is a concise and handy book for reference and for suggestive ideas.

JELLIFFE.

EPILEPSY AND OTHER CHRONIC CONVULSIVE DISEASES. THEIR CAUSES, SYMPTOMS AND TREATMENT. By Sir WILLIAM GOWERS, M.D., F.R., C.P., F.R.S. Second Edition. P. Blakiston's Son & Co., Philadelphia.

In all particulars, save that of its general character, this book is a new one. The ease and grace shown in the descriptive passages in the first edition, are here the same, but there is a great

increase in the wealth of illustration, and the generalizations drawn are from critical studies of 3,000 cases, whereas, 1,450 served as the foundation of the former edition.

Not only is the work richer for this doubled number of cases, but it profits by the author's maturer opinions concerning a very protean disease, thus giving the book more of the character of a completed study. It thus ranks with the larger classics of Binswanger and Fétré.

It is a matter of some regret that a more thorough and modern exposition of the *pros* and *cons* of surgical interference in epilepsy is not given by the author, and one would expect to find a discussion on the open air or colony plan of treatment, since such a procedure has enjoyed so widespread a popularity not only in America, but in Europe as well.

Notwithstanding the somewhat incomplete chapters on treatment, the work remains the best in the English language.

SMITH.

JAHRESBERICHT ÜBER DIE LEISTUNGEN UND FORTSCHRITTE AUF DEM GEBIETE DER NEUROLOGIE UND PSYCHIATRIE. Redigirt von Professor Dr. E. MENDEL, in Berlin, und Privat-docent Dr. L. JACOBSON, in Berlin. IV. Jahrgang, Bericht über das Jahr, 1900. S. Karger, Berlin.

We have had occasion in former years to commend most highly this year book of neurology and psychiatry. It is so vastly superior to anything of its kind, published in any language, that no working neurologist who makes any claim of keeping posted on the work of his specialty, can afford to be without it.

The present year book varies in no important detail from that of its predecessors. It is more complete, however, and we venture to assert that nothing of importance has been omitted. As an example of the thoroughness with which the work has been done it may be of interest to note that over one hundred papers on tabes are abstracted.

The therapeutic abstracts are to be especially commended. They cover the entire field and are extensive enough to be of service without the need of a comparison with the original article.

The authors and publishers alike are to be most heartily congratulated on this present year-book. It should have a great success.

JELLIFFE.

A TEXT-BOOK OF MEDICINE FOR STUDENTS AND PRACTITIONERS. By ADOLPH STRÜMPPELL. Third American Edition from the Thirteenth German Edition. Translated and edited by Drs. H. F. VICKERY, P. C. KNAPP, FREDERICK C. SHATTUCK. D. Appleton and Company, New York.

No text-book of modern years has had the vogue of Strümppell, and this is because of no accident, but of its sterling merits. Translated as it has been into at least nine different languages, it has served its useful purpose in diffusing knowledge of general medicine to all parts of the world, and has raised the intellectual level of the careful reader no matter where he may have been born. Such books are of great benefit to the profession.

In the preface to the thirteenth German edition the author outlines in a very clear, graceful and philosophic manner his desires in the production of this new edition. It is rare to find so good an in-

traduction. "My purpose was not to collect all of the facts of pathology, which have been discovered up to date, nor all the methods of treatment which may have been recommended, wisely or unwisely, nor all the theories or views which have been propounded. My wish was to give a complete presentation of the essentials of our present knowledge and views with regard to the various diseases, from a scientific and individual standpoint; and I desired particularly to impart to the reader an insight into the origin and relation of the various morbid phenomena." Perhaps no one else has done this very desirable thing in so excellent a manner.

To the neurologist the work is particularly valuable not only because of the high reputation in that specialty which the author possesses, but also of the able collaboration of a neurologist of note in this country. For a short presentation of the subject of nervous diseases it would be hard to find its equal.

There is much to praise and little to criticise in this new edition, and the work still remains an enduring monument to the author's great grasp of the essentials in medical practice. JELLIFFE.

LEHRBUCH DER NERVENKRANKHEITEN FÜR ÄERZTE UND STUDIRENDE.
Von Prof. Dr. H. OPPENHEIM. Dritte vermehrte und verbesserte
Auflage. S. Karger, Berlin.

New editions of text-books appear frequently in Germany, and usually the latest edition is a great improvement on those that have preceded it, and contains the pith of the recent literature. Oppenheim's "Lehrbuch" has now reached a third edition, and the second edition has been translated into the English language.

This third German edition has been much enlarged by additions both to the text and to the illustrations, the latter having been increased from 287 to 369 in number. It contains references to the literature on neurology that has appeared within the three years that have elapsed since the publication of the second German edition.

Oppenheim's text-book is so well known, and enjoys such an enviable reputation, that it needs no introduction to the medical public; and all that is necessary is to call attention to the fact that this third edition is now on the market. It is truly a remarkable production; in its condensation, its wealth of original observations, its recognition of valuable recent literature of all countries, it has no superior. It is one of those books the neurologist must have if he desires to keep informed on his special subject. We might select here and there a chapter for special notice, but this might fail to accomplish the desired object, because the book is of uniform value throughout, not only to the specialist in nervous diseases, but also to the general practitioner and the undergraduate student. As an example of the thoroughness of the work we may, however, refer to the chapter on hemiplegia. In this are references to Mirallie's, Fére's and Saenger's papers on the implication of the upper branch of the facial nerve in hemiplegia—a condition which has been known to exist before these papers were written—reference to the views of Wernicke and Mann on the greater implication of certain muscles in paralysis of cerebral origin; to the views of Bonhoeffer on the location of a lesion in the superior cerebellar peduncles as the cause of athetosis, etc.

Oppenheim has published in this book many original observations that are not found elsewhere in his writings. Although it con-

tains 1,220 pages we could not desire the omission of any part. If it finds the reception it merits, it will have a large circulation.

SPILLER.

PROGRESSIVE MEDICINE. A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by HOBART AMORY HARE, M.D. Assisted by H. R. M. LANDIS, M.D. Volume III, September, 1901. Diseases of the Thorax and Its Viscera, Including the Heart, Lungs and Bloodvessels—Dermatology and Syphilis—Diseases of the Nervous System—Obstetrics. Lea Brothers & Co., Philadelphia and New York.

This volume of "Progressive Medicine" contains some very interestingly practical material for wintry weather. Some of the newer remedies for bronchial and pulmonary affections are fully discussed. The use of apomorphine given hypodermically in doses of about 1-30th of a grain as a sedative expectorant with distinct hypnotic action, shows an old friend in a new rôle. Myrtol, a yellowish, oily, pungent fluid, has been most successfully employed by Solomon Solis Cohen in the profuse catarrhs of bronchorrhea, bronchiectasis, fibroid phthisis, bronchitic asthma, etc., in doses of from five to fifteen minims, in emulsion or in sealed capsules. Thiacol, the potassium salt of guaiacol sulphonic acid is also suggested as a useful remedy in bronchial cases.

The postural treatment of bronchial affections, especially in accordance with Quincke's ideas and methods is becoming more and more popular. The patient is placed on the face with the shoulders below the level of the hips, and gravity aids in the expulsion of secretion. Naturally this is not suited to acute cases.

The chapters on diseases of the brain and of the nervous system, by Dr. Spiller, make an especially complete and suggestive résumé of these subjects. Dr. Spiller's work is so thorough in this matter as to leave nothing to be desired.

In the chapters on obstetrics there is an especially full discussion of recent advances in medicine with regard to the etiology and treatment of eclampsia. Taken all in all this volume of "Progressive Medicine" represents a most informing review in brief of the most practical points in recent medical literature. J. J. WALSH (New York).

News and Notes.

PROF. NAGEL has been appointed to the position of Prof. A. König at Freiburg.

DR. E. STORCH, First Assistant in the Psychiatric Clinic in Breslau, has been appointed as privat-docent in Psychiatry.

DR. H. A. TH. DEDICHEN, of Christiania, has founded a new bi-monthly journal of Neurology and Psychiatry. It is entitled *Tidsskrift for Nordisk Retsmedicin og Psykiatri*. Full analysis of its contents will appear in the *JOURNAL OF NERVOUS AND MENTAL DISEASE*.

PROF. DR. KIRCHOFF, Privat-docent at the University at Kiel, has resigned this teaching position.

THE PSYCHIATRIC ASSOCIATION, of Berlin, has recently drawn up a scheme of reform for the treatment of inebriates. It declares that special institutions are necessary for the isolation of victims of the drink habit. These may be open like general hospitals, or closed after the manner of lunatic asylums. Only institutions adopting the principle of total abstinence should be permitted. The admission of inebriates into institutions may be voluntary at the request of the party concerned, or compulsory under such safeguards as are required in the case of admission to lunatic asylums. The necessary provisions should be laid down by the local authorities in conformity with existing municipal regulations. At the head of these special institutions should be physicians possessing special knowledge of mental and nervous diseases.

A NEW psychiatric clinic has been founded at the University of Groningen.

THE MEDICAL STAFF of the National Hospital for the Paralysed and Epileptic, have finally gained the victory in their contest with the managing Board. An entirely new Board of Management has been chosen; more in sympathy with the needs of the Institution.

THE ANNUAL MEETING of the Neurological Society, of London, was held February 6. Dr. H. W. Page delivered the address on Concussion of the Brain in Some of its Aspects.

THE PSYCHIATRISCHE WOCHENSCHRIFT will change its name in April, 1902, to the *Psychiatrisch-Neurologische Wochenschrift*, because of the many requests of neurologists to widen the scope of the journal. We wish it continued success under its new name.

DR. FLAVIUS PACKER, formerly of the Matteawan State Hospital, and recently appointed resident physician in charge of the pavilion for the insane at Bellevue, began his new duties February 15, the Board of Estimate and Apportionment approving his appointment and salary at its meeting.

Dr. Packer's first appointment was at the Long Island State Hospital, and he went from there to Matteawan when that hospital for the criminal insane was first established. He is a specialist of practical experience, and his services were secured by the new manage-

ment with the idea that such a person should be directly in charge of this department of Bellevue. Dr. Packer's assistant will be Dr. Gregory, from the Long Island State Hospital, whose transfer has been agreed upon by the State Civil Service Commission.

DR. ADOLF MEYER, the new head of the Pathological Institute of the New York State Hospital, has reappointed Dr. P. H. Levine as head of the chemical department, and Dr. Brooks as associate in bacteriology. Both were connected with the institute under Dr. Ira Van Gieson, whom Dr. Meyer succeeds. Further appointments, it is announced, will be made as soon as the Civil Service Commission furnishes a list of eligible candidates. Plans for the reconstruction of the Verplank building of the West Manhattan Hospital, on Ward's Island, have already been accepted, and the contracts are being advertised. The Verplank building was originally erected by the Emigrant Department for hospital purposes, and when it was turned over for State service it retained its old name. It is now a three-story building, occupied by hospital wards. The larger part of one floor was, until recently, used as a dining room, but only a few days ago was deserted for the new one just completed. This large room will be rebuilt into several smaller ones, giving plenty of space for a pathological-anatomical laboratory, a chemical laboratory, and rooms for special service.

A DISASTROUS FIRE occurred February 18, destroying Dr. J. H. Kellogg's entire sanitarium at Battle Creek, Michigan. There was no loss of life. The buildings are to be rebuilt immediately.

CIVIL SERVICE EXAMINATIONS for positions in the reorganized Pathological Institute, will be held in New York City, March 15, 1902. The following places are announced: Associate in Clinical Psychiatry (\$1,200); Associate in Chemistry (\$1,800); and Chief Associate in Neuro-Pathology (\$1,800).

THE ROYAL INSTITUTE OF SCIENCE AND LETTERS, of Lombardy, announces the following subjects for theses to be presented in competition for the Cagnola and Fossati prizes for 1902: Cagnola prize, study of the hypophysis cerebri based upon original research; its comparative and embryological anatomy; physiological significance; facts and hypotheses concerning its rôle in pathological processes. Fossati prize, localization, through research and experiment of some cerebral center; psychic, sensorial or motor.

AMERICAN MEDICO-PSYCHOLOGICAL ASSOCIATION. The fifty-eighth annual meeting of the American Medico-Psychological Association will be held in Montreal, the third Tuesday, Wednesday, Thursday and Friday in June. (17th, 18th, 19th and 20th) 1902. The meeting follows that of the American Medical Association at Saratoga, which occurs in the second week in June. The matter of transportation has been placed in the hands of the Committee of the latter Association and it is hoped to obtain special railroad rates for both meetings. The headquarters of the Association will be the commodious and comfortable Windsor Hotel, delightful in all its appointments and especially well adapted for convention purposes. Special rates have been secured for members and their friends. The Committee, under the chairmanship of Dr. Burgess, has taken up the matter of arrangements for the meeting with much enthusiasm, and with the large attendance expected, a profitable meeting from every point of view is assured. The annual address will be delivered by Dr. Wyatt Johnston, Lecturer on Medical Jurisprudence,

McGill University Law Faculty, Assistant Professor of Hygiene, the Medical Faculty, Pathologist to Montreal General Hospital, etc., etc. Subject—"The Medico-Legal Appreciation of Trauma in Its Relation to Abnormal Mental Conditions."

Papers have been promised as follows: Dr. Henry M. Hurd, Baltimore, Md., Folklore of Insanity; Dr. E. G. Carpenter, Columbus, Ohio, Insanity and Degeneracy; Dr. J. H. McBride, Pasadena, Cal., Boarding out for the Chronic Insane; Jas. M. Buckley, D.D., L.L.D., Morristown, N. J., The Possible Influence of Rational Conversation on the Insane; Dr. A. B. Richardson, Washington, D.C., Women Nurses in Hospitals for the Insane; Dr. George Villeneuve, Longue Pointe, Que., Conjugal Jealousy as a Cause and Excuse for Crime from a Medico-Legal Standpoint; Dr. Jas. Russell, Hamilton, Ont., The Psychology of Anarchism; Dr. William Rush Dunton, Towson, Md., Dementia Praecox; Dr. E. D. Bondurant, Mobile, Ala., The Early Diagnosis of General Paresis and the Possible Curability of the Disease in its Initial Stages.

Papers of which the titles are not yet announced are promised by Dr. A. Vallee, Quebec; Dr. Daniel Clark, Toronto; Dr. Jas. V. Anglin, Montreal; Dr. Geo. L. Sinclair, Halifax, N. S.; Dr. C. R. Woodson, St. Joseph, Mo.; Dr. W. H. Hancker, Farnhurst, Del.; Dr. R. M. Bucke, London, Ont.; Dr. M. E. Withee, Clarinda, Iowa; Dr. C. G. Hill, Baltimore, Md.; Dr. W. F. Drewry, Petersburg, Va.; Dr. J. W. Babcock, Columbia, S. C.; Dr. Edward Cowles, Waverly, Mass.; Dr. J. A. Houston, Northampton, Mass.; Dr. Owen Copp, Boston, Mass.

The Secretary will be much indebted for promises of additional papers and will esteem it a favor if those willing to read papers will be kind enough to send titles at the earliest practicable date.

C. B. Burr, Secretary.

DR. JACOPO FINZI, one of the collaborators of the *Revista di patologia nervosa e mentale*, of Florence, has just died of typhoid at the age of twenty-nine.

THE AMERICAN NEUROLOGICAL SOCIETY will hold its Twenty-eighth Annual Meeting Thursday, Friday and Saturday, June 5, 6, and 7, at New York in the New York Academy of Medicine. Members are requested to send in the names and abstracts of their papers six weeks in advance of the meeting. The annual dinner will be held Friday evening, June 6.

PROF. KRAFFT-EBING is to resign the Chair of Psychiatry in Vienna, in favor of Professor W. V. Jauregg.

DR. PIERRE JANET has been elected to the Chair of Psychology in the College de France made vacant by the resignation of Professor H. Ribot.

INCREASE OF INSANITY IN ONTARIO.—According to the report of the inspector of lunatic asylums for the Province of Ontario, there were in these institutions on September 30, 1901, 4,604 patients as compared with 3,318 twelve years ago. The population for the different asylums in the Province is set down as follows: Toronto, 724; London, 1,034; Kingston, 509; Hamilton, 1,029; Mimico, 605; Brockville, 613. A comparison of the relative increase of insanity with the population shows that while the provincial population has increased from 1,396,091 in 1861 to 2,182,942 in 1901, or 56 per cent., the number of insane and idiots, officially known, has increased in those forty years from 1,631 to 5,880, or 260 per cent. The ratio forty years ago was one to 856; it is now one to 371. Of course, there is a great

change in public sentiment within that time with regard to placing patients in asylums for treatment.

ILLINOIS GENERAL HOSPITAL FOR THE INSANE.—With the arrival and installation of a hundred inmates from the Illinois Central Hospital for the Insane at Jacksonville, the asylum for the incurably insane at Bartonville was formally opened for the reception of patients February 10. From now on the State Commissioners of Public Charities will cause to be transferred from the State Insane Hospitals at Jacksonville, Elgin, Kankakee, Anna and Watertown, with the consent and concurrence of the Superintendents and Trustees of these institutions, such number of incurable patients as the new institution can accommodate. The next installment of transfers will be made later, when 200 patients will be sent from Kankakee and Elgin, one hundred from each place. This institution was built for the care of insane persons for whom there is no hope of recovery. These were so numerous at the State hospitals for the insane that it was believed by the officials that their presence was a hindrance to the successful work on the curable patients. For that reason it was decided to separate them. The capacity of the new institution, while fitted with employees' quarters, domestic buildings, heating and electric plants and storage buildings sufficient to accommodate two thousand patients, is at present limited to about seven hundred, since the cottage and dormitory room will accommodate only this number. Until more ground is acquired the present facilities will not allow for the care of more than that number, and the next General Assembly is depended upon to see that provision is made for more cottages. Meantime, the structure commonly known as the employees' building will be utilized exclusively for the care of patients.

GOVERNOR ODELL has signed the State Lunacy Bill placing the New York State Hospitals under the control of a centralized board of control. It is expected that the bill for a like procedure in the control of the State Charities will soon be drafted and railroaded through, as was the State Lunacy Bill.

THE
Journal
OF
Nervous and Mental Disease.

Original Articles.

A CASE OF METASTATIC CARCINOMA OF THE SPINE
AND MENINGES.

By ALBERT C. BUCKLEY, A.M., M.D.,

DEMONSTRATOR OF NORMAL HISTOLOGY IN THE MEDICO-CHIRURGICAL
COLLEGE; ASSISTANT TO NERVOUS CLINIC, MEDICO-
CHIRURGICAL HOSPITAL, PHILADELPHIA.

The case reported in this paper is of interest not only because it is one of a class of diseases which rarely occurs, but also for the reason that some of the symptoms usually associated with cancer of the spine were not present.

I am indebted to Dr. Charles W. Burr for the privilege of studying the case clinically, and for the opportunity of studying the pathological material obtained at the necropsy.

K. B., female; aged 63; nativity France, was admitted to the Philadelphia Hospital February 12, 1901. The family history was negative. The patient had been in good health until six years previous to her admission to the hospital, when she had an attack of what she called "rheumatism." During the same year she injured her left breast, to what extent is unknown.

One year before she entered the hospital she had an attack of violent pain in the back. This lasted but a day, and she was able to be out of bed the following day, though she had some difficulty in walking. This difficulty steadily increased, and for three months previous to admission to the hospital she had been confined to her bed.

She complained of pain in the left shoulder, inability to control her bladder, that is, the urine dribbled, and there was obstinate constipation. No other definite subjective symptoms could be obtained.

Physical Examination.—The patient was confined to bed because of inability to move her legs. There was no palsy of the face; the tongue protruded straight; there was no palsy in either arm, but both hands were weak and when extended there was a tremor in both. There was a slight bowing of the spine in the superior thoracic region—that is—the patient was "stoop-shouldered," but there was no angular deformity.

Both legs were completely paralyzed and there was bilateral "foot-drop." The legs were edematous, particularly the right. There was wasting of the thighs and calves, particularly the left thigh. Muscle reactions were not taken. As to the reflexes both biceps-jerks were slightly increased. The knee-jerks were absent. The Achilles-jerk was present on the left but absent on the right. Stroking the sole of the left foot caused extension of all the toes except the little toe, and this was very marked. On the right side there was very slight extension of the great toe.

Sensation to touch was normal on the face, hands and arms. In the legs it was preserved, but the patient could not localize.

The blood-count showed a great diminution of the red cells, 2,250,000; and an increase in the leucocytes, 13,500.

There was a large ulcerating bed-sore over the sacrum, another on the hip, and a third (a small one) over the right superior iliac spine. The left breast was the seat of a hard nodular growth.

The patient's condition grew rapidly worse, the bed-sores becoming larger, and wherever there was pressure others appeared. On the seventh day after admission the temperature became subnormal and remained between 94 and 95, until her death, which occurred on the eleventh day.

The necropsy, made by Dr. W. F. Hendrickson, revealed the following: the left breast showed an indurated mass, the cut surface was mottled grayish-yellow, and showed many interlacing white bands. There was no ulceration, nor were the axillary lymph glands enlarged. There was edema and hypostatic congestion of the lungs, the liver was large and fatty, and the spleen contained several infarcts. The kidneys were of the small granular variety, and the aorta was considerably thickened, being calcified in patches. There were no metastases in any of the viscera.

At the level of the fourth dorsal vertebra and extending

downward about five centimeters, the dura was adherent to the adjacent bone. On separation, the surface of the greatly thickened dura was seen to be covered with grayish-pink granulations. There was no apparent involvement of the pia or arachnoid. At this same level, there was a slight kyphosis, and the bone was distinctly softened, cutting like cartilage, but there was no tumor of the bone.

For histological examination, pieces of the diseased bone and the first four cervical segments of the spinal cord were hardened in formalin. The remainder of the cord was hardened in Müller's fluid. Sections of the bone were stained with hemalum and eosin; the cord sections were stained with the Weigert method, hemalum-eosin, hematoxylin-eosin, and sodium carminate. The primary growth was sectioned and stained by Dr. Hendrickson, to whom I am indebted for slides of the same, which show all the characteristics of scirrhus carcinoma. Sections made from the affected vertebræ show very little bone substance, nevertheless, between the trabeculæ-like masses of osteoid tissue may be seen nests of cells similar to those in the primary growth. Some of the trabeculæ are cartilaginous in appearance. In the areas where there is not an invasion by the cancer cells, there is an infiltration of round and spindle-shaped cells, together with leucocytes. The periosteum is thickened and infiltrated though not with cancer cells.

Grossly, the cord showed a thickening of its dura extending from the fourth to the ninth dorsal segments. After hardening there could be seen extending throughout the cervical, and in the dorsal region as far as the seventh segment, a light-colored area corresponding to the postero-median columns. In the seventh segment no such localized area could be discerned, except in the lower part, where the crossed pyramidal tracts were seen to be affected, extending as far as the lumbar part of the cord. Sections were made from each segment, beginning with the first cervical and ending with the conus.

In the cervical segments, sections stained with nuclear stains show the pia to be infiltrated with small round cells, which infiltration follows the path of the blood-vessels. The veins show a marked infiltration of the connective tissue surrounding them. The white matter shows an increase in the neuroglia, particularly in the posterior and lateral parts of the cord, as is evidenced by the large number of nuclei of glia cells. Here and there can be seen vacuoles replacing the nerve fibers. The gray matter shows its substance to be very vascular, the ganglion cells being for the most part normal. The

central canal is patulous and the cylindrical epithelium easily distinguished.

In the Weigert-stained preparations, an area of apparent degeneration appears in the column of Goll of each half of the cord. This area extends but two-thirds of the distance from the periphery to the gray commissure. When examined under high power the apparently degenerated (that is, the faintly-stained areas) show an increase of the neuroglia, rather than an actual degenerative process, inasmuch as there are many well-staining nerve fibers distinctly separated from each other by neuroglia. In the fifth segment the direct cerebellar tract shows a distinct neuroglial increase.

The dorsal part of the cord shows the greatest amount of change. The upper segments are in some respects similar to those of the cervical part of the cord. The dura is thickened, more posteriorly than anteriorly; the pia is also somewhat thickened, its vessels distended with blood and their walls infiltrated with small round cells, particularly beneath the intima. The entire cross section gives the appearance of a distinct neuroglial overgrowth, most marked as before mentioned, in the posterior columns (Goll). In Weigert-stained preparations these columns are but faintly stained, and in the vicinity of Gowers' bundle in the left half of the cord there is a marked increase of neuroglia. In the part of the white matter where the neuroglia is not so marked the axis-cylinders are swollen. The ganglion cells seem not to be changed except that their protoplasm is slightly granular. As the sections descend the thickening of the membranes becomes more marked and the interstitial overgrowth increases in the white matter. The cellular infiltration becomes more marked and seems to have invaded the nerve roots. Upon examining the upper part of the third dorsal segment, the outer surface of the dura on the anterior aspect of the cord shows a small amount of loose connective tissue adhering to it, and in the lymph spaces are seen several nests of large, deeply-stained nuclei, most of which are larger than a mononuclear leucocyte, and are apparently identical with the cells of the primary growth in the breast and those in the vertebræ. The nerve roots do not contain any of the cells just described. The fourth, fifth and sixth segments show a very much thickened dura and a much greater number of nests of large cells. In sections from the fifth segment one of the nerve roots contains a single cluster of cells similar to those found in the dura.

The sixth dorsal has the greatest amount of thickening of the dura and of infiltration with cancer cells. No cancer in-

filtration is seen in the pia. In sections stained by the Weigert method, the replacement of the nerve fibers by neuroglia is shown to be in patches both in the posterior and lateral columns. The gray matter contains an overgrowth of neuroglia and is not easily distinguished from the white matter, containing, however, numerous apparently normal ganglion cells.

At the level of the seventh dorsal segment the destruction is most marked. The growth of neuroglia far exceeds that found in the other segments, and is most marked posterior to the gray commissure and in the lateral columns of the right half of the cord, where the nerve fibers are practically absent. Sections made in the upper part of the segments contain more normal fibers than the deeper ones. In the lower third of the segment (approximately) the interstitial tissue is more diffusely arranged, except in the crossed pyramidal tracts, where there are no normal fibers to be seen. The central canal is patent in the upper part of the segment, but where the greatest amount of connective tissue is found the canal is filled with deeply staining round cells. The gray matter is shrunken and distorted, no ganglion cells can be found. The vessels in the nerve roots stain very faintly, though the cells of the intima are apparently normal. The vessels in the meninges stain deeply.

Below the seventh segment the meningitis is less marked. There are a few cancer cells to be seen scattered irregularly through the various segments. Some sections, however, show none. The proliferation of neuroglia is less marked than above, as is the degeneration in the crossed pyramidal tracts. Where there is an actual degeneration it occurs in scattered patches in the crossed pyramidal tracts. In the eighth segment the artery of the anterior fissure is very much thickened, the intima in particular. This is more marked than at any other level. The tenth segment shows more of the carcinoma infiltration than any of the segments below the seventh, and is much less than that described above. The cells of the anterior horns are very much shrunken—nuclei in many instances cannot be seen, and in others, the nuclei are pushed to the extreme edge of the cells.

The lumbar segments do not show marked changes in the white substance. There is an increase in the neuroglia, particularly in the crossed pyramidal tracts, and a few scattered patches of degeneration. There is a mild grade of meningitis; the nerve fibers in the roots stain very well by the Weigert method—better in the anterior roots than in the posterior, though hematoxylin-eosin stained preparations show an

increase in the number of small round cells among the nerve fibers.

That carcinoma of the spine is a rare disease is shown by the work of Schlesinger, who, after examining the reports of the Vienna Pathological Institute, found that in 3,720 cases of carcinoma there were 54 with metastasis in the vertebræ and meninges of the spinal cord. In addition, he speaks of five cases observed personally. This report together with the very complete bibliography which accompanies it, has been valuable to me in studying the subject.

It is held by some that cancer of the spine may occur primarily, but the bulk of evidence seems to prove that it either occurs as a secondary growth, or from contiguous structures. When the growths in the spine are metastatic, as they are in most instances, they most frequently follow carcinoma of the breast, as is shown by the following table (Schlesinger's):

Breast	in 10 cases.
Esophagus	" 9 "
Thyroid	" 9 "
Uterus	" 6 "
Bronchus	" 5 "
Stomach	" 4 "
Prostate	" 3 "
Gall bladder	" 2 "
Ovary	" 1 "
Sigmoid flexure	" 1 "
Rectum	" 1 "
Kidney	" 1 "
Adrenal	" 1 "
Pancreas	" 1 "
Not specified	" 1 "

Bruns reports five cases occurring after breast disease. Osler describes four cases, one of which gave symptoms of increased reflexes and nerve-root pain only. In none of his cases was there an autopsy. Boettiger reported a case in which, after removal of a mammary growth, there were spinal symptoms and the findings of cancerous infiltration into

the vertebræ. Amidon reports three cases and reviews the literature, concerning thirteen cases.

Two cases are reported by Scanzoni—one, in which the growth, secondary to cancer of the breast, invaded not only the vertebræ and meninges, but also gained entrance to the substance of the cord at the point of entrance of the posterior roots. The second case, after carcinoma of the thyroid, showed the substance of the cord to be involved, the process having followed the line of the anterior root and the posterior median fissure. Terrier describes a case in which the lower three lumbar vertebræ and part of the sacrum were affected secondarily to cancer of the breast. There was no involvement of the cord or nerves. Concerning metastasis in the spine after carcinoma of other organs, several reports occur in the literature. Simon mentions two cases—one, after cancer of the kidney with involvement of two lumbar vertebræ; another, following cancer of the esophagus with involvement of the cervical vertebræ. Nonne reported a case following cancer of the stomach.

Like other forms of spinal disease, carcinoma produces symptoms referable to the bone, the nerve-root and spinal cord.

Of the bone symptoms deformity is the most important. It is not always present, and when observed it is usually less marked than that in tuberculous spinal disease. According to Amidon's table, the deformity exists most frequently in the dorso-lumbar region. Bone pain is not a constant symptom and when it is present, the diseased vertebræ, in many instances, are not sensitive to pressure. Rigidity of the spine is usually present.

Of the nerve-root symptoms, those sensory are usually the first noticed. Pain is the most important, and usually continues throughout the course of the disease, though some cases do run their course without severe pain. The pain associated with the motor symptoms led Cruveilhier to term it "paraplegia dolorosa," which condition Charcot later associated with cancer. The important feature concerning the pain is that it is radiating in character, and made worse by

movement. Anesthesia is said not to be frequent, but hyperesthesia and paresthesia are common symptoms. Herpes zoster occurs in many instances.

Of the motor symptoms, the palsy, though not the first symptom, may come on suddenly. Schlesinger cites a case in which it came during the night—no lesion of the cord substance having been found, but the nerve roots were distinctly damaged. He also mentions the fact that where the nerve roots alone are affected, fibrillary twitchings are apt to precede the palsy, and atrophy rapidly follows.

The symptoms referable to cord involvement may be slow in onset, the result of an advancing compression myelitis; or, sudden, through the displacement of the vertebræ, and, followed by the symptoms of vertebral caries. The resulting palsy will depend upon the level of the cord affected. In other instances the onset is similar to that of a transverse myelitis with palsy of the extremities below the lesion, loss of control of the bladder and rectum, loss of sensibility, skin and tendon reflexes, followed by atrophy and trophic ulceration.

The case just related gave an indefinite history of pain, called "rheumatism," several years before there was any difficulty in muscular activity. Whether this is one of the cases, as are described by Charcot, in which the cancer remains latent in the vertebræ and suddenly becomes active, is impossible to say, as the personal history furnishes no definite guide. The pain, in all probability, was not a nerve-root pain, since other symptoms, which would have been associated with it, were not present. During the height of the disease there was little pain. There was no visible deformity of the spine. There was a flaccid palsy of both legs; bladder and rectal control were lost; with the exception of one Achilles jerk and the Babinski reflex on each side—more on one than the other—the reflexes were lost.

From the foregoing facts it may be concluded that the pain, which together with the other sensory symptoms, may exist for a long time without any palsy, is due, not to the bone disease, but is the sign of nerve-root involvement. On the other hand, when absent, palsy and other cord-symptoms

being present, it is to be inferred that the cord-disease has been so rapid as to exclude the transmission of sensory influences, in which instances there will also be anesthesia; or, that the nerve roots are not at all affected. Secondly, that the palsy may be due either to pure root involvement, or to disease of the substance of the cord—a compression myelitis. Thirdly, that vertebral carcinoma may run its course without severe pains, therefore, not always producing the “paraplegia dolorosa.”

The absence of severe pains with the presence of nerve-root involvement at levels of the cord higher than that at which there was a great destruction of its substance, can only be explained by the personal equation, since we know of the presence or absence of pain by the word of the patient. The absence of anesthesia in this case makes it impossible to account for the absence of pain in any other way. The absence of marked deformity simply means that the secondary process in the cord (the interstitial overgrowth) following the meningitis progressed more rapidly than the neoplasm in the vertebrae.

REFERENCES.

Schlesinger, H. “Beiträge zur Klinik der Rückenmarks und Wirbeltumoren.”

Osler.—American Medicine, April 6, 1901.

Boettiger.—Neurologisches Centralblatt, 1899, p. 230.

Billroth.—Deutsche Chirurg. Lieferung, 41.

V. Scanzoni.—Prager Zeitschrift f. Heilk., Bd. 18.

Terrier.—Jour. de Med. et de Chirurg. pratique, 1874, xlvi, page 250.

Simon, H.—Deutsche med. Woch., Berlin, 1884, page 355.

Charcot.—Oeuvres Complètes. Tome II, page 116.

Nonne.—“Ueber Carcinoma der Wirbelsäule,” Neurolog. Centralblatt, 1899, page 1142.

Amidon, R. W.—N. Y. Med. Journal, 1887, page 225.

A CASE OF INTRACRANIAL DISEASE INVOLVING THE
CHIASM, AND ALSO PRODUCING PROFOUND
MENTAL AND NERVOUS DISTURBANCES.*

By

B. C. LOVELAND, M. D.,

AND

F. W. MARLOW, M. D.,
SYRACUSE, N. Y.

Mrs. E. D. T. was first seen by one of the writers (Loveland) on April 30, 1900. She was led into the room apparently totally blind, stooping and tottering as she was helped to a chair. She was of medium height, about thirty years of age, and weighed 140 pounds. Her complexion was slightly pale, but her lips were of good color. Her father was alive and healthy. Her mother died at 48 years, from cancer, which recurred after an operation. As a girl she was healthy, but not robust. The only thing ascertained as illness before marriage, was, that one winter while in school she found it difficult to keep awake, yawned constantly, and could hardly study on account of sleepiness. This condition lasted several weeks.

She was married at 21 years of age, has had two confinements, and one miscarriage, the youngest child being six years old; the miscarriage occurred about seven years ago, midway between the two confinements. Her children were "thin and skinny," as she expresesd it.

She had iritis about a year after marriage, the left eye being affected, but denies ever having had any skin eruption or other signs of specific disease. Some months later I learned that her husband had had a sore which left no scar about a year before his marriage, but denied ever having had any other signs of syphilis. About five years ago there was a period in which she slept very soundly, and did not know on waking what had transpired before she went to sleep, but after her memory was prompted she would recollect. This condition was transient. At this time on one or two occasions she said she could hear, but could not understand what people said to her.

For the past four years she has been well until March 1899, when she ceased to menstruate, and thought herself

*Read before the Central N. Y. Medical Association, August 28, 1901.

pregnant, holding that opinion for five months, during which time she ate ravenously hoping for a fat child. On this account she grew very stout. She felt well, and was much occupied with the care of a sick grandmother. At this time she was told that she had a tumor, and must have an operation, but as her mother had died after an operation for cancer, she refused to go to the hospital.

From the time that she gave up the idea of pregnancy, she slowly lost flesh, but is still fat, while her heaviest weight was 186 pounds. At the same time she began to complain of pain in different parts of her body, and this pain made it difficult for her to walk or assume an erect posture; she slept a great deal, but waked frequently and sat up to ease the pains in her legs. She grew progressively weaker, and until shortly before she came to me (Loveland) was treated for rheumatism.

She had been steadily losing her sight for four months, until now she could scarcely detect light. She complained of great pain in the legs and back, weakness, thirst polyuria, uncontrollable sleepiness, especially in the daytime, and constant yawning when awake. She used to drink a quart or more of water during the night, waking frequently, but going to sleep again after relieving her thirst and emptying her bladder. She passed nearly four quarts of urine in 24 hours, sp. gr. 1006, no albumin or other abnormality.

She never complained of pain in her head or eyes since the iritis mentioned. Her temperature was normal, but her pulse, though regular, was 112. Her tongue was coated and dry. She showed great muscular weakness, and could not make a record on a dynamometer. All her bodily hair had fallen out, and that on her head was dry and falling out. There were no signs of disease of the abdominal or pelvic viscera. There was general hyperesthesia, slightly exaggerated knee-reflexes, and ankle-clonus. There was slight tremor on motion, and a considerable degree of rigidity of muscles, especially of legs and back. She protruded her tongue slowly, and with tremor, but in a straight direction. Her palate was high-arched; pupils were large, and the left one irregular from previous iritis. The pupils reacted feebly to light, but failed to react when all sense of light had been lost a day or two later.

The optic discs were somewhat pale, but beyond this the ophthalmoscope showed nothing to account for her blindness. Retina had also been examined in Feb. 1900, and was again on May 2, by an oculist who was unable to detect any pathological change in the fundus. She seemed very leth-

argic, or apathetic, both mentally and physically, slow to speak and slow to comprehend. She yawned several times a minute when awake, and would fall asleep while being asked questions.

A diagnosis of specific disease affecting the brain and optic chiasm or tracts was made, and it was thought that some of the symptoms might be hysterical.

She was put on full doses of yellow iodide of mercury, and pills of asafetida and nux vomica.

During the first week or so a test was made almost daily to see if she could detect light, and at her worst she could not locate a Welsbach light a few feet from her, or see bright sunlight. Improvement was rapid under the treatment prescribed, and on May 9 she could detect light but not form, and talked and acted much better. Mercury was discontinued for two or three days on account of signs of salivation, and then given in smaller doses, and strychnia was substituted for the nux and asafetida pill.

On May 12 she could see moving objects, as people or carriages, but could not count fingers. She still complained of pain and soreness, worse in her knees.

On May 14 she saw the colors of a flag, and told what it was, and also walked much better. Read Snellen's 200-ft. test type at 3 1-2 feet.

On May 17 acuity of vision was improved, but hemianopia was noticed. On this date she was taken to Dr. Marlow, and his report of her ocular condition and improvement is as follows:—With the right eye she counted fingers badly at a foot; with the left her vision was 9-140. The pupils reacted promptly to light, but the indirect action of the right was much better than that of the left.

The optic discs were decidedly pale, but there were no white lines along the arteries, or other changes in the blood vessels. The edges of the discs were sharply defined.

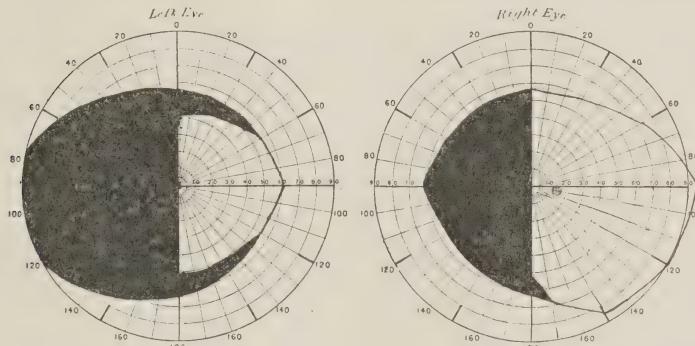
Examination of the field of vision showed total loss of the left half of each field, and a partial loss of the right half in the right eye. The condition of the right eye would be better described by saying that vision was present only in a portion of the right half of the field, the fixation point and region around it being included in the blind area. It was, therefore, impossible to make an accurate chart of the field. In the left eye, however, vision was present at the fixation point, consequently the chart of this eye is probably an accurate representation of the field at the time.

On June 1st, vision of the right eye had risen to 6-24, and that of the left to 6-6; the improvement of the conduction of

the light impulse in the right eye being shown by the fact that the indirect reaction of the pupil of the left eye had become as good or very nearly as good, as that of the right.

Careful examination of the pupils demonstrated also the presence of the Wernicke hemianopic pupillary inaction sign. Examination of the fields at this time showed marked improvement, mainly in the right eye, and also that the line dividing the seeing from the blind half of the field passed through the fixation point, or within a degree of it. The vision of both eyes improved so that on Aug. 2d it was 6-6 in each eye separately, the left being still a little better than the right.

On Sept. 7th she sees and locates the light of a candle placed near to her in the blind half of the fields, but does not recognize the form of the candle until it crosses into the right half of the field—that is to say, she has a returning light sense



Fields showing loss of vision with exception of light sense.

in the left half of each field, but no form sense. This change is accompanied by a disappearance of the pupillary hemianopic inaction sign.

Oct. 13, no change. Letters of the lower line of test type dance or disappear as she looks, large letters do not. As it was thought that this might be due to a rhythmical movement of the eyes necessitated by the fact that the dividing line passed through the fixation point, she was tested on the ophthalmometer, a small printed word being used for fixation, and the corneal image found to be unusually steady, although there was a fine, fairly rhythmical lateral movement.

Nov. 1, tested carefully to determine the gain, and the relation of the dividing line to the fixation point; the result going to show that it lies at a distance of about 5" from the

fixation point. (The button on the perimeter used for fixation measures 5mm. in diameter, and has a screw measuring 3mm. in its center. The white test object is never seen until it impinges on this screw.) This observation was made with great care on each and every occasion upon which I measured the field of vision, with the invariable result of producing a chart of the field in which the line separating the blind from the seeing half passed through the fixation point.

Dec. 13th, color vision normal, but in the right eye there is a relative scotoma for red and green—red being called pink at the fixation point and for about 5° around it; green being called white. In the left eye there is no scotoma.

The history of complete blindness, with dilatation of the pupils, and complete loss of light reflex, without ophthalmoscopic change can only be explained by a lesion lying at the optic commissure, or between it and the corpora geniculata. The fact that the blindness commenced in both eyes, the subsequent history, and the repeated examinations seem to indicate that the lesion, so far as it affected the visual apparatus, probably commenced at the commissure, and gradually receded, leaving the fibers coming from the left optic tract in a practically healthy condition.

The presence of a residual central color scotoma in the right eye, and its entire absence from the left, suggests that the lesion either commenced at, or at some period extended to, the right optic nerve itself, or a part of the chiasm anterior to the point where the crossed and uncrossed fibers join to form the right nerve. For, had it been entirely limited to this point and the parts posterior, we should expect to find the residual color defect hemianopic in character.

In addition to its being an example of that comparatively rare condition—chiasm disease—this case differs from the majority of reported cases of hemianopia chiefly in two respects. First—the hemianopia occurred as a symptom of returning health, rather than of advancing disease. From a condition of complete blindness, we have an almost perfect homonymous hemiopic recovery. Second—the line dividing the seeing from the blind half of the field passes practically through the fixation point. The observations on this point were repeated so many times, and on so many different occasions, that no doubt remained that the test object came well within $15''$ and probably to $5''$ of the fixation point before it was seen.

It will be remembered that in the vast majority of cases the dividing line does not go through the fixation point, but skirts around it at a variable distance of several degrees, leav-

ing it in the seeing half of the field. So universal is this observation that it has given rise to the theory that the macular region of the retina has a double representation in the cerebral cortex—is, in fact, completely represented in each hemisphere, and consequently in each optic tract.

It is evident that the facts in this case do not harmonize with this theory. From a condition of complete blindness, we have seen recovery of one half of the field with normal central acuity; nevertheless, the recovery in the region of the fixation point, or macula, is strictly hemiopic. We must infer that the optic tract, and the corresponding hemisphere contained fibers from one-half of the macular region only.

It is interesting to note the progress of recovery. From March until the end of April complete blindness, dilatation of pupils, and no reaction to light.

May, latter half, hemiopic restoration of vision, left and right. Reaction of pupils with marked hemianopic pupillary inaction.

June. Rapid improvement in vision.

September shows some return of light sense in the blind (L) halves of the fields, and this is accompanied by the loss of the hemianopic pupillary inaction sign.

October shows improved light sense and projection, but absolute inability to recognize form in left halves of both fields.

From a condition of total blindness, there was a recovery of light, form and color sense on one side, and of light sense on the other half of the field.

The restoration of light sense led to the hope that there might later be a restoration of the form and color sense, but essentially no change has taken place in eight months, so it is unlikely that any further improvement will occur.

During the time covered by Dr. Marlow's report of the patient's eyes, her general condition has improved in a very satisfactory manner. A few things need special note however. On May 19th, saturated sol. iod. potassium, in ten-drop doses, three times a day, was substituted for the yellow iodide of mercury, the doses being increased one drop a day till 25-drop doses were reached. She has taken these doses three weeks out of four up to the present time, the only effect being that she seemed to have a cold in the head when the remedy was first pushed, but this was the only sign of physiological action. Strychnia was also continued for a long time.

As she began to loose her somnolence, and to improve in mental acuity, she seemed to suffer more pain, and slept poorly at night.

In my notes of July 13, 1900, "Can read brevier type at an ordinary distance with either eye, but tires very quickly. Her muscles and eyes both seem very weak, and become exhausted on slight exertion."

September 1. Pain in knees is much better, and she sleeps well at night. She had complained grievously of her knees, but there was never anything objectively wrong with them, except that early in her sickness she could not straighten them, owing to the rigidity of the muscles referred to as one of the symptoms.

November 8. She feels, looks, and acts much better every way, but still is stiff on rising, after occupying any position long. Potassium iodide was ordered to be taken three weeks, then to be omitted for a week. From this date to the present there has been practically no change in her vision, except that she can read or write without such fatigue as she had at an earlier period. She has gained much in both muscular and nervous strength, has done her own house-work for a long time, and walks out a good deal. Her grip on the dynamometer only amount to 18, but a year ago she could not make a record on it.

Since this case did not furnish an autopsy, we can only speculate as to the exact location of the lesion in the brain. It was evident at the first that there was some profound cerebral trouble, but it was also plain that the motor tract was at least only indirectly affected; and the somnolence, which suggested the region of intellection, was so like that she had when a girl in school, that it made the family think she was hysterical and indolent, as in the former instance.

The blindness, and later, the ophthalmoscopic examinations rendered us important aid in locating the trouble, viz.: by showing us that optic neuritis was not present, and probably had not existed; that the atrophic appearance of the optic nerve was suggestive of secondary, rather than consecutive atrophy; and consequently we had to deal with a mass pressing on the chiasm and tract, rather than with a basic meningitis.

These considerations, together with the fact that the mental symptoms were more marked than the physical, make it probable that the lesion began in the third ventricle, and that most of the symptoms were caused by pressure; that affecting the visual apparatus beginning at the chiasm or very near to it, and later its influence being limited to the right tract, and that it remained long enough to cause the permanent hemianopic defect. The polyuria and rapid pulse were very slow in passing away. She has not menstruated nor shown signs of a cycle of ovulation.

A CASE OF MULTIPLE LESIONS OF THE SPINAL CORD AND CRANIAL NERVES WITH AMYOTROPHY, DUE PROBABLY TO SYPHILITIC INFECTION.¹

BY MAX H. BOCHROCH, M.D.,

CHIEF CLINICAL ASSISTANT IN THE NEUROLOGICAL DEPARTMENT AND
INSTRUCTOR IN ELECTRO-THERAPEUTICS IN JEFFERSON MEDICAL
COLLEGE; NEUROLOGIST TO THE OUT-PATIENT DEPARTMENT
OF ST. JOSEPH'S HOSPITAL;

AND

ALFRED GORDON, M.D.,

ASSISTANT IN NEUROLOGY, JEFFERSON MEDICAL COLLEGE.

J. B., aged 34, brewer by occupation, came with the following history to the Neurological Clinic of the Jefferson College Hospital. In July, 1900, he began to feel pain in the right supra-orbital region, which lasted until October. Glasses were adjusted and pain became easier. In September a ptosis of the right eye developed very rapidly. At that time he noticed that he saw double, which condition has continued up to the present time. Two months later he began to complain of pain and weakness in the left thigh when he walked or stood, but when resting there was no pain. As soon as he starts to walk, pain appears in the left knee, and while walking extends to the whole thigh. In May, for the first time, he experienced shooting pain all along the left limb. Besides the pain the patient complained also of sensation of heaviness in the left thigh when he walked or attempted to get up, or on going upstairs. This condition of heaviness has been present from the onset of the disease. At about the same time he commenced to have some trouble with micturition: it was somewhat difficult; he had to wait a few minutes before he could urinate. This condition exists at the present time. He has been constipated for many years. Patient was always healthy. Never had any infectious disease, except gonorrhea about seven years ago; it lasted but eight days. He has been married for the last two years, has one child, which is healthy. No history of miscarriages. Has one brother of forty-two, who is in good health, two sisters who are married and in perfect health. Father and mother are about seventy and in good health. Patient had worked in a brewery since the age of

¹Read before the Philadelphia Neurological Society.

fourteen, has therefore been exposed to cold and dampness. Alcoholism and syphilitic infection denied.

Present Condition.—Patient weighs 158 pounds, height 5 feet, 10 inches; chest circumference 41 inches. He is very well built and powerful. Excellent stature. Excellent and healthy appearance.

Examination shows: Gait normal with open eyes, but somewhat difficult with closed eyes. Cannot stand on the left leg, but does it with difficulty on the right. Station with closed eyes presents a normal sway. Sensations (touch, pain and temperature) normal. Besides heaviness he complains of cramp-like sensation in the left leg, occasionally in right. Knee-jerk on the right is exaggerated, on the left lost, even on reinforcement. Some rigidity in the right leg, flaccidity in the left. No ankle-clonus on either side. Babinski present on both sides, more marked on the left than on the right. Musculature: Upper extremities are apparently equally developed on both sides, no evident atrophy. The left scapula distinctly recedes from the thorax, and Bechterew's reflex is more marked on the left than on the right side. Dynamometer shows 75 for R. and L.

Lower extremities: Cyanosis on the left side, skin colder on the left than on the right. The vastus internus on the left is very flabby. The measurements are as follows: taken in the middle at equal distance from the upper border of the patella the circumference of the left thigh is 38 cm., of the right 44 cm. The legs at the same distance from the lower border of the patella show 27 1-2 cm., for the left leg, and 29 for the right. Left knee-joint is larger than the right. The musculature of the legs is too small in comparison with the rest of the body above the umbilicus.

Electrical examination gave the following result: *Left limb.* Examined with a galvanic current, the muscles of the whole member show that the AnCC is equal to the CaCC, more marked in the vastus internus, except that of the postero-external aspect of the thigh, where the CaCC is but very slightly stronger than AnCC. With a faradic current very little response to a current of average strength was found, and to obtain a normal contraction a very strong current was required. *Right limb.* Under galvanic current the muscles of the thigh present the normal formula, but those of the leg present some change: the CaCC is but slightly stronger than AnCC. *Eyes.* Right pupil larger than left, and does not react to light. Left reacts sluggishly to light. The right eye presents an ophthalmoplegia; this is very marked in the upper and lower movements of the eye; on the nasal side there

is only a partial paralysis of the muscle. The movement of the eye-ball externally is complete. Ptosis was very marked when we first saw him, but it is improved. The ciliary muscles are also paralyzed.

Summing up the case we see a progressive muscular atrophy of spinal type limited to the lower extremities, pronounced in the whole left limb, and less marked in the right leg, with an increased deep reflex and rigidity on the right side, and loss of reflex with flaccidity on the left, slight disturbance of micturition—all this developed in a patient who presents a characteristic nuclear ophthalmoplegia. The case seemed to us quite unusual, and we hesitated in classifying it. The diagnosis can be made in our opinion only by exclusion. Multiple neuritis, tabes, anterior poliomyelitis of adults, amyotrophic lateral sclerosis and syphilis of the cerebro-spinal axis were taken into consideration.

Multiple neuritis may follow exposure to cold such as was the case in this instance, also give rise to loss of power early in the disease; the muscles atrophy rapidly and become flabby, the deep reflexes are lost. In spite of the presence of these few symptoms, we cannot accept the diagnosis of multiple neuritis in our case, as the onset, course and other symptoms are not to be found in this disease: we do not find the sudden onset of infectious character: no chills, no elevation of temperature, no premonitory symptoms, like malaise, headache, etc. Nor do we find the typical course of multiple neuritis. Tenderness of the nerve trunks under pressure is absent and the electrical reactions show changes which we do not find in multiple neuritis.

Anterior poliomyelitis should next be taken into consideration. This disease may occur in adults as well as in children. It is the result of an infection which has its seat of predilection in the gray matter of the anterior horns. If the acute form of this disease presents an onset infectious in character, there are, nevertheless, subacute and especially chronic varieties where the onset is slow, and the last form we find mostly in adults. In a few isolated cases of chronic poliomyelitis progressive muscular atrophy was found, but

this is quite rare. Dejerine² reports a similar case in a syphilitic patient, but the atrophy was more marked in the upper extremities than in the lower. Autopsy proved that it was a case of a simple chronic poliomyelitis; in the whole cervical region the cells of the anterior horns had disappeared and the anterior roots were very much altered. The white columns remained normal. In our case atrophy is present in the lower limbs, but the other symptoms are not those of anterior chronic poliomyelitis, such as was conceived by Charcot and Vulpian. It remains for us to consider the possibility of amyotrophic lateral sclerosis, or of a multiple disseminated syphilitic infection of the cerebro-spinal axis. The first of these two affections should be thought of at the first glance.

We have here progressive muscular atrophy of the spinal type; gradual wasting of muscles of the whole left extremity, and partially of the right leg; the fibrillary contractions are absent, but the electric reactions are in accord with the idea of a spinal muscular atrophy; the knee-jerk is lost on the left side, but exaggerated on the right; flaccidity on the left, rigidity on the right side; Babinski's sign present on both sides. We may therefore admit an involvement of both the gray matter and lateral columns on the right side of the cord, but an involvement of only the gray matter on the left. Consequently we are in presence of multiple lesions distributed unequally on both halves of the cord, and the classical type of amyotrophic lateral sclerosis cannot be accepted.

Multiplicity of lesions all along the cerebro-spinal axis, manifold in their manifestations, various in localizations, supervening almost simultaneously in different portions of the cord, extending to the medulla and involving nuclei of cranial nerves, all this suggests syphilitic affection of the nervous system. The only unusual atypical point in our case is the amyotrophy.

Muscular atrophy of myelopathic type in systemic diseases of the cord is quite rare. Dejerine thought that tabetic amyotrophy was of peripheral nature, but Leyden, Charcot, Pierret, Marie have found alterations of the anterior horns. The microscopical studies show that the degenera-

tion of the cells of the anterior horns may take place in two ways: one is the ordinary poliomyelitis, an acute disease which destroys not only the cells, but also other histological elements of the anterior horns; it is an affection of the trophic center which alters the peripheral motor path. The other is an affection of the anterior horns which begins in an insidious way and very slowly; we find it in toxic and tabetic amyotrophies. The clinical character of tabetic amyotrophy is totally in accord with the histological changes. We know that the collaterals of the posterior roots reach and surround the motor cells of the anterior horns. In tabetic degenerations those collaterals disappear, and if the stimuli for the motor and trophic cells of the cord no more exist, we can readily understand why we find the changes in those cells, changes that are first of dynamic and then histologic character. But if amyotrophies in tabes are rare, they are still rarer in specific affections of the cord. The perusal of the literature at our disposal for the last five years convinced us that there are only a few reported cases of amyotrophy in syphilis. The older writers mention occasionally syphilis as the causative factor of muscular atrophy. In one case Shmauss reports a flaccid paralysis and rapid wasting of the muscles, and at autopsy a focus of softening in the gray matter of the lumbar cord.

Among recent writers we find one case of Rendu and three cases of Raymond³. They all present a clear history of syphilis with amyotrophy of Aran-Duchenne's type. Like in our case, the involvement began with a diplopia of the right eye. Discussing the case, Raymond arrives at the conclusion that it was a case of a chronic meningo-myelitis of a diffuse and progressive character. At autopsy he found, besides other lesions, an involvement of the anterior roots and these roots were thin and gray; and disease of the anterior horns where the cells were very much altered, were without prolongations, and without deformed nuclei. The cellular changes were only in the cervical region, corresponding to the amyotrophy of the upper extremities. But what was striking was

the vascular involvement; the vessels were large, overfilled with blood; the same condition was seen in the anterior horns. The white columns were also very much altered. The meninges were involved; those of the spine were soft, and the dura of the cranium was adherent. As to the ravages of syphilis in other portions of the cord, they are too well known to dwell upon. The etiological relation between syphilis and various nervous diseases has been established comparatively recently.

This is particularly true with regard to the spinal cord. The history of Erb's spastic spinal paralysis, or of Charcot's spastic dorsal tabes illustrates sufficiently the rôle of specific infection. Baumgarten and Lanceraux maintain that the first stage of syphilis of the nervous centers is characterized by a periarteritis, which is soon followed by an endarteritis, because of a deficient nutrition caused by an obliteration of the *vasa vasorum*. The pia is the starting point; the arteries and arterioles which nourish the substance of the cord being obliterated, ischemia is produced, and the gray matter principally suffers from insufficient irrigation of blood. Ehrlich, Brieger and Spranck proved it experimentally. Similar results were obtained by Flourens⁴ and by Panum⁵. If syphilitic infection is capable of injuring various portions of the cord through the large and smallest blood-vessels, the lesions will be various. The predominance of the lesion in certain tracts or in the gray matter will give a picture of systemic spinal disease.

Oppenheim, Ewald, Marinesco called attention to cases of spinal syphilis associated with symptoms of tabes. Minkowski observed a case in which the lesion was localized almost exclusively in the lateral columns, and gave the picture of a primary lateral sclerosis. Mendel and Schuster observed multiple specific lesions in the cord in a case which clinically presented the signs of disseminated sclerosis.

According as the process of destruction of the gray substance is rapid or slow we may observe the clinical types of acute or chronic anterior poliomyelitis.

Syphilis is capable of causing amyotrophic paralysis not

only as a result of a myelitis or meningo-myelitis like in Raymond's cases, but also as a result of a general peripheral neuritis. Gilles de la Tourette's case is the best illustration of this.

Finally there are complex forms which cannot be classified, and in which we find symptoms of involvement of the roots, of the white columns and of the gray matter, symptoms of multiple and disseminated lesions along the spinal axis.

In a recent paper one of us⁶ brought out the importance of infection as etiological factor in various affections of the cord with numerous clinical, pathological and experimental data to corroborate and emphasize this view.

In presenting this case we take the opportunity to again call attention to this point. In all probability our case is one of those many examples where a spinal amyotrophy was caused by infection. The previous history, the course of the disease, the fact that the patient could take high doses of specific remedies, and the amelioration of symptoms under this treatment are in favor of the infectious origin of the muscular atrophy.

We wish to express our indebtedness to Dr. F. X. Dercum for his kind permission to present this case.

²Comp. Rend. de la Soc. de Biol. 95, 10, s II, 188.

³Bull. de la Soc. Méd. des Hôp., Février, 1893.

⁴Computes rend. de la Acad. de Sci., 1847.

⁵Exper. Beiträge zur Lehre von der Embolie. Virchow's Archiv., 1862, Bd. xxv.

⁶A. Gordon, Philadelphia Med. Jour., 6-29-1901.

OBSERVATIONS ON FIFTY-FOUR CASES OF LOCOMOTOR ATAXIA, WITH SPECIAL NOTES ON ETIOLOGY.¹

BY DUDLEY FULTON, M.D.,
OF BATTLE CREEK, MICHIGAN.

Tabulated symptoms of fifty-four cases:

Lost knee-jerk, 88%.
Romberg's symptom, 80%.
Ataxic gait, 77%.
Lightning pains, 73%.
Paresthesia, 70%.
Argyll-Robertson pupil, 67%.
Incoördination, 65%.
Vesical disturbance, 60%.
Paralysis of ocular muscles, 27%.
Sexual weakness, 25%.
Diplopia, 21%.
Girdle sensation, 19%.
Skin reflexes disturbed, 14%.
Ptosis, 11%.
Muscular sense lost, 10%.
Arthropathies, 8%.
Perforative ulcers, 6%.
Crises, 4%.
Muscular atrophy, 4%.
Optic atrophy, 2%.
Nystagmus, 2%.

Of the symptoms tabulated, the six most frequent were, in order mentioned: Lost knee-jerk, static ataxia, locomotor ataxia, lightning pains, paresthesia, and the rigid pupil to light. Closely following these were: Incoördination, bladder difficulties, and ocular palsies. The lost knee-jerk, the Argyll-Robertson pupil, ataxia, and the lightning pains furnish the classical symptom-complex of tabes. The presence of any three of them makes a diagnosis clear; or, the finding of any two with one or two signs and symptoms of minor significance, such as bladder weakness, or diplopia, justifies a diagnosis of tabes.

¹Read at Calhoun County Med. Asso., Aug. 13, 1901.

The order of onset of symptoms varied greatly. Difficulty in walking in the dark, or through a crowded thoroughfare usually first awakened the patient's interest. Often, pains designated "neuralgic" and "rheumatic" preceded the ataxia. Paresthesia was common, being present in 70% of cases, and was often the first symptom. In five or six cases, difficulty in starting the urine, or sphincter weakness, was the first symptom. In four cases, double vision was the initial symptom. In one case gastric crises ushered in the disease.

The conditions which in our experience most often need differential exclusion are certain forms of peripheral neuritis, neurasthenia, spinal syphilis, and early general paresis. The importance of safely excluding the latter graver disease leads me to cite a case, and to discuss briefly the supposed relation of tabes and paresis.

Two years ago a patient in the third decade of life applied for treatment. A diagnosis of tabes was made. He had a lost patellar reflex; his pupil responded to accommodation, but not to light; he had ataxia and gastric crises. Other signs and symptoms were absent. He took treatment several weeks, and was advised to return in a year, which he did. Considerable improvement was noted in walking, and the gastric crises had ceased. One week before his third return, mental symptoms of an exalted nature, with delusions of grandeur suddenly developed. This elation and expansion have largely subsided, and the patient is mentally reduced. The diagnosis is now, undoubtedly, general paresis.

The interesting question is, Was it general paresis two years ago? The German and French schools say that in a certain measure every case of tabes is one of incompletely developed paresis. The majority of neurologists, however, see in paresis an independent disease which is developed in tabetic individuals. According to Fürstner, in 62% of paretics there is found a disease of the lateral and posterior columns of the cord. Accordingly the very earliest signs which may precede the beginning of the abnormal psychical manifestations are those belonging to the symptom-complex of locomotor ataxia—Argyll-Robertson pupil, lost knee-jerk, lancinating pains, incoordination, and bladder weakness. So uni-

versally are physical signs present in paretics, that today one would scarcely care to diagnosticate paresis without the presence of some of the cord-symptoms usually found in tabes.

About a dozen cases—not in this series—were differentiated from tabes before the onset of mental symptoms only by the characteristic clumsiness of speech and tremor of the tongue and muscles of the lower face. In other respects they resembled tabes closely. Two of these patients have within the past year developed the typical mental symptoms of paresis. It can be safely advanced that tremor of the tongue and lips, and changes in articulation, with perhaps mild changes in the disposition of the patient, change the complexion of the diagnosis to the graver malady, general paresis. An early diagnosis of locomotor ataxia is of great importance. The physician's skill in detecting the malady early offers the patient about his only hope of relief.

The prognosis, judging from results obtained with these fifty-four cases, is not altogether bad. Improvement in the general health is almost always observed, and usually those who come in the first, or even the second stage, have the disease processes stopped or delayed for an indefinite period.

Etiology of tabes—The disease is much commoner in men than in women. Of the fifty-four cases presented, two were women. Hereditary influences are rare. Exposure to wet and cold; fatigue; excesses, particularly sexual, are considered predisposing causes; excessive smoking; and the continuous moderate, or the occasional excessive use of alcohol, invite degenerative processes. Fifty-four per cent. of this series gave histories of tobacco or alcoholic dissipation.

The toxins of infective fevers are undoubtedly capable of reducing the resistant powers of the individual, and occasionally play the rôle of exciting causes. Eleven per cent. of these cases followed influenza, and in four per cent. the symptoms of tabes appeared immediately after typhoid fever; four per cent. received a trauma to the spine a few months before the onset of symptoms. Almost all cases developed between the ages of thirty and sixty. In five, the symptoms first appeared in the third decade—a small percentage in comparison

to other series—sixteen in the fourth decade; nineteen in the fifth; seven in the sixth; and two reported first symptoms as late as the seventh decade. I have a patient now in his eightieth year, the diagnosis of whose malady I am yet in doubt, but whose findings point strongly to tabes.

Less importance is now being given to syphilis as a causative agent than formerly; or, at least, greater attention is given to the possible rôle of other poisons. Three distinct positions are taken regarding the existance of a causal relation between syphilis and tabes. The position of extreme affirmation is occupied by Ferrier, and others whose opinions may be briefly expressed, "No syphilis; no tabes." At the other extreme stand Leyden and others who either deny the relation altogether, or hold that it is still unproved. Of Leyden's 108 cases,² only twenty per cent. were syphilitic—a percentage not greatly above that found in non-tabetic patients.

Grimm³ draws attention to the fact that syphilis is rife and virulent among the Japanese and negroes, and tabes rare. Lewin is cited as finding no case of tabes in 800 female syphilitics. Gluch found an absence of tabes in 3,000 syphilitic Bosnians.

Drennen⁴ suggests a possible factor in producing locomotor ataxia in the long continued and uninterrupted administration of large or even measurably large doses of iodide of potassium which is so commonly given at the present day; and other neurologists are seriously considering this possibility.

A middle position is assumed by a great majority of observers who maintain that 45 to 80 per cent. of cases of locomotor ataxia are due to syphilis. Of our cases, including the positive specific, and four doubtful cases, 42 per cent. were syphilitic. But while syphilis is an antecedent in a large percentage of cases, syphilitic cases resemble the non-syphilitic as regards the histological characters of the lesions, and specific treatment has no effect upon cases with syphilitic history. Hence the broadest conclusion which we can deduce from the fact is that syphilis alters the physiological condition in such a way as to favor the attack and operation of the actual cause of tabes. In this its influence is like that of

measles, or scarlet fever, in leading to the development of tuberculosis; and similar, also, to the action of the influenza bacillus in relation to other pathogenic organisms.

I quote from a recent writer: "When to these facts of clinical experience, we add the evidence of experimental bacteriology, from which we learn, for example, that the presence of staphylococci and streptococci leads to a much more luxuriant growth of the influenza bacillus; and, further, that the latter will grow more rapidly in a medium through which these other organisms have passed, we are strangely attracted to the existence of an analogy in the relation of the syphilitic virus to the toxic agent responsible for locomotor ataxia."⁵

Thus from the many factors attributed as the cause, and the lack of uniformity in the estimation of value of the various supposed etiological agents, it is evident that the pathogenesis is not fully understood, and that in quite a large percentage of cases causes are at work preparing soil for degenerative processes in the spinal cord other than syphilis. Very pertinent and instructive observations and experiments have been made recently, and are now being conducted, with the end in view of determining what these influences are.

In reviewing the fifty-four cases of locomotor ataxia of this paper, surprise was elicited at the large percentage of patients giving a definite history of gastro-intestinal disturbances, such as army diarrhea, gastric and intestinal catarrh, chronic gastritis, chronic constipation, gastrophtosis and enteroptosis, and chronic liver troubles, antedating the onset of any of the symptoms of tabes from a few months to several years. Forty-six patients, or 85 per cent. of cases, gave such histories.

Chalmers Watson⁶ obtains conclusions based upon experimental work and clinical study, which are pertinent to the large percentage of gastro-intestinal disorders preceding tabes in this series. Fowls fed on a diet limited to red meat and water, developed symptoms of an acute nature, ataxia, paraplegia, gradually developing unconsciousness and death. Others exhibited no nervous symptoms. In a third class severe attacks occurred of a nature similar to those of the first

group, without, however, involvement of the higher neurones. At the time of the attacks no change was made in the dietetic regime, the only difference being that the animal ate sparingly. A slow recovery occurred on each of these occasions which was probably due to the acquisition of some degree of immunity to the action of the toxic substance or substances responsible for the symptoms.

In two clinical cases of tabes, Dr. Watson has observed initial symptoms, directly referable to the digestive tract, and regards the presence of these gastro-intestinal lesions of primary importance in the production of lowered power of resistance to toxic influences leading to a later development of the spinal cord lesions.

Treatment—Our opinion is that there is no therapeutic agent of as much value in successfully combating the degenerative processes, and in raising the vitality of the diseased parts and of the entire body, as hydrotherapy. Winter-nitz, after a long experience, gives his results of treatment of 1,000 cases treated by hydrotherapy as being vastly more satisfactory than by any other mode of treatment. The general indication as well as indications for the treatment of special symptoms such as, for example, the cutting pains, are more uniformly and satisfactorily met by scientific applications of hydrotherapy than by medicine.

Extremes in temperature are to be avoided, as well as excessive corporeal-exercises. Rest is one of the first and important indications. Electricity and massage give good results.

The suspension treatment as formerly given was, in our judgment, too severe; and while good results were observed in cases, we no longer use the suspension apparatus, but obtain equally satisfactory results by stretching the cord through lengthening the vertebral column, thereby inducing a mild inflammatory reaction—the end sought by the suspension treatment. (In this method, the patient is seated upon a table and the legs are held in an extended and adducted position, and the upper part of the body is then forcibly flexed forward.)

One of the later methods of treatment of tabes has pro-

duced, in our experience, since its adoption, very satisfactory results with patients treated. This consists in the methodical exercises by which the patient is gradually re-taught coördinated movements. The idea was first advanced and recommended by Fraenkel, and has received much commendation by German neurologists. Tabetics have lost in part the power to properly execute and coördinate fine movements. These exercises require the patient to pass from simple to complicated movements. He is made to relearn the control exercised by his eyes and the rest of his sensory apparatus, the proper motor impulses which induce coördinated movements. That it is of much value is without question. A patient left the Sanitarium last week, who, upon his arrival, could neither walk nor stand even with the help of crutches; and who gradually relearned the art of walking so that he could walk nicely with a cane. Another patient, apparently in the third, or paralytic stage, bed-ridden upon arrival, left, walking with a cane and crutch. He continued the exercises and returned a few months ago without the crutch. At the present time he is disabled by a Charcot's joint.

In a word we may say that in the last 24 or 25 patients of this series, who have been given the Fraenkel exercises, very satisfactory results have been obtained. It is not an unusual experience for crutches and canes to be laid aside. I do not give all the credit to this system, by any means; but will say that the treatment of tabes is by no means complete without its careful and persistent use. Each patient is given a type-written schedule of exercises which he follows carefully every day, once or twice, under the direction of an assistant.

We refer again to the chronic gastro-intestinal disturbances of severe character antedating the onset of tabes. Eighty-five per cent. gave a history of such marked disturbances against 42 per cent. who gave a history of syphilis. It is difficult to resist the conclusion that the above chronic disorders of the intestinal tract produced disturbances of nutrition of primary and direct importance; and that the production of toxins and poisons within the alimentary tract, and their absorption and presence in the general circulation would interfere with the nutrition of the cord, and that defec-

tive nutrition accounts simply and adequately for degeneration of the nerve fibers.

One of the first indications, therefore, for treatment in the light of the experimental work upon the effect of a toxic diet upon fowls above quoted and supported by the experience of Dr. Watson, and also by our own cases, would be the treatment of the gastro-intestinal disturbances, and the establishment of a healthy condition of the digestive tract, by giving the patient a proper and nourishing diet. Along this line we with others have observed that gastric and rectal crises, and the lancinating pains of tabes are often concomitant with, and preceded by, a dirty tongue and constipated bowel. Elimination and kidney function are to be increased.

I again quote from the *British Medical Journal*: "I submit that the proper line of investigation is directed to the discovery of the nature and source of the toxic substance at work. At the same time we must study the clinical facts of the disease in the light of the results obtained by experimental bacteriologists and others investigating the all-important subject of immunity. In my opinion the alimentary tract furnishes the chief area of investigation, and in all probability it will be proved to be the original source of the toxemia. In this connection, it is interesting to refer to the experimental work of Adami and others on the different forms of chronic infection, due primarily to the presence in the tissues of bacterial poisons derived from the intestine. The diseases especially investigated by Adami were cirrhosis of the liver, hemachromatosis, and pernicious anemia; and this author as quoted by Putnam and Taylor, suggested that this subinfection would be found to play a definite part in the development of many chronic fibroid conditions."

²Lyons Méd., '95.

³Inter. klin. Rund., Aug. 29, '94.

⁴Alienist and Neurologist, Oct., '96.

⁵British Med. Jour., June 1, 1901.

⁶British Medical Journal, June 1, 1901.

NEW YORK NEUROLOGICAL SOCIETY.

December 3, 1901.

The President, Dr. Joseph Collins, in the chair.

Sarcoma of the Brain.—Dr. M. Allen Starr presented a woman who had been brought to him by her family physician, Dr. Bush, on November 1, 1900. She had been perfectly healthy before this illness, and there was absolutely no history of specific disease. On July 1, 1900, she had been exposed to a very intense heat, and suddenly after this she had had a general convulsion. She had been ill after this for two or three days, and had then recovered, but the convulsion had been repeated two weeks later, and she had had convulsions at intervals of two weeks to a month up to the time of coming to Dr. Starr. During this period she had lost flesh and strength, and had suffered from dizziness and impairment of vision. In October, 1900, the left side of the body had become distinctly weaker. The patient's husband was quite positive that the convulsions were usually limited to, or were much greater on, the left side of the body. The attack began with numbness in the finger and thumb of the left hand; then a closure of the hand occurred, after which the numbness extended up the forearm and arm, and the forearm became flexed and the arm abducted. Lastly, there was shaking. The numbness would extend up to the shoulder, and then the patient would lose consciousness. After that, the leg would become convulsed, and the left side of the face would twitch. On examination Dr. Starr had found no strabismus or apparent paralysis of the face or tongue. The left hand was weaker than the right, as shown by the dynamometer. The left knee-jerk was increased, and there was some numbness in the hand as compared with the other side. The patient had suffered much from headache. When seen a month later, the attacks were more frequent, so that she was having as many as eight in a day, and the headaches were more severe. When seen again in January, the attacks still continued, but were not quite so severe, and she did not lose consciousness. She was losing about half a pound of flesh a week. The difference in the two hands by the dynamometer was represented by 40 and 60. Operation had been repeatedly urged by Dr. Starr, but consent had not been obtained until March 19, 1901, when the patient's condition had become much worse, and there was a beginning optic neuritis. She had been sent to Dr. A. J. McCosh, at the Presbyterian Hospital. It was thought that the lesion was located in the middle third of the motor zone, in the posterior central convolution, and an incision was made in accordance with this view. The operation was done under chloroform; a horse-shoe incision being used. The skull was sawn through and the brain exposed. On lifting up the flap of bone, it was evident that there was some thickening of the dura. The dura was reflected, but was nowhere found to be adherent. Posterior to the fissure of Rolando in the middle third of the posterior central convolution, the brain surface was yellow, and was markedly destitute of blood vessels. It was evident that this discolored mass was a tumor lying upon the brain. It had a thin capsule, but was carefully separated from the brain tissue. In the interior, however, it was not limited by a capsule. On removal, the mass measured one inch antero-posteriorly, and one and a quarter inches vertically, and was one inch thick at its thickest part. There was a smooth external surface, but it was nodular internally.

On section the tumor was hard and not at all vascular. The cavity in which the tumor had lain was lined by compressed convolutions, but at the bottom the tumor invaded the white matter. There was no hemorrhage from the pia, and the pulsation of the brain quickly returned. The patient made a rapid and uninterrupted recovery from the operation. Immediately after the operation hemiplegia of the left face, arm and leg had developed. This had gradually passed off, and there was now nothing left of it except a slight weakness of the hand. The patient had been entirely free from the attacks since the operation, and had been free from headache, and had gained about twenty pounds in weight. At the present time there was an intention tremor and an athetoid movement in the left hand. On the left side tactile sensation, and temperature, pain and muscular senses were all impaired to about the same extent. The woman was not able to determine by sensation the nature of many objects grasped by the left hand—a condition that had not existed before the operation. The knee-jerk had increased upon the left side. The optic neuritis had entirely disappeared. The hemiplegia Dr. Starr ascribed to the tearing of the brain during the operation. The tumor proved to be a sarcoma.

Intense Flushing of the Face.—Dr. Edward D. Fisher presented a man of twenty-two years, who from the age of sixteen had had periodic attacks of intense flushing of the face, sometimes in the form of a distinct red band. It never extends farther down than the chest. He is dull and stupid at the time of the flushing, although he has never lost consciousness or had a distinct epileptic attack. It is not connected with nervousness or emotions, and resembles erythromelalgia. Iodide and bromide of potassium were the remedies that had given the greatest relief. The man's habits were excellent and he is largely in the open air, being a carpenter.

Dr. W. M. Leszynsky said that he had seen two patients with a similar disturbance of the cervical sympathetic as a result of excessive coffee drinking.

Dr. Joseph Collins suggested that the man be given half a drachm of fluid extract of cascara sagrada every night for two weeks, with no other treatment whatever. The affection was evidently a localized vasomotor paresis confined to the cephalic area which had been proven to be in connection with disturbance of the lower intestine. He was not inclined to look upon this as a serious disorder, but rather as originally a toxemia, and secondarily a bad habit.

Dr. Fisher said he had had the patient under his observation for two years, and this explanation did not seem to him to meet the case.

Dr. Joseph Fraenkel said that he had had a patient with a similar condition under observation for several weeks at one time, and Dr. C. L. Dana, who had also seen the patient, had been of the opinion that it was a vasomotor paresis arising from intestinal toxemia. There were also some neurasthenic symptoms directed to the sexual organs.

Dr. Fisher said that he had treated the boy at first on the basis suggested by the last speaker, but further observation had led him to think this was a mistake.

Tumor of Cerebellum Involving the Abducens Nucleus.—Dr. M. G. Schlapp presented a man, twenty-one years of age, who had come to him about six weeks ago. There was no tuberculosis in the family, and he had had no syphilis. About two years ago the patient had first noticed that at times he would become dizzy, and that this would

be followed by headache and vomiting. Shortly after this he had fallen out of a wagon, and since then the left side had grown weaker. Examination of the eye showed choked disk; he had also weakness of the left leg and an ataxic gait. The ataxia was most marked in the left leg; the knee-jerks were absent; the plantar and abdominal reflexes were present; the pupils were equal and reacted to light; there were no sensory disturbances. A week ago he had developed a disturbance of the conjugate movement of the eyes, which had disappeared in two days. The convergent reaction was, however, preserved. Dr. Schlapp had made a diagnosis of a tumor involving the anterior part of the left side of the cerebellum, and in some way affecting the abducens nucleus.

Tumor of the Posterior Central Convolution.—Dr. Schlapp also presented a woman, forty-one years of age, a Bohemian cigar maker. She had enjoyed good health up to five years ago. At that time she had fallen down stairs and had sustained some contusions, including one on the left side of the head. Subsequently the right arm and shoulder had become the seat of twitchings, and she had attacks of loss of speech. After three years twitchings extended from the shoulder to the neck, face and tongue. At first these attacks had occurred once in two weeks, but recently there been many in a day. Latterly she had also suffered from intense shooting pain in this limb. Dr. Schlapp had made a diagnosis of a tumor in the posterior central convolution extending back into the parietal lobe. There was astereognosis and impaired tactile and muscular sensibility on the affected side. Pain and temperature senses were not specially disturbed. Dr. Woolsey had operated upon this patient, and had found a yellowish and somewhat indurated area, about the size of a dollar, in the posterior central convolution. A section of this tissue was exhibited under the microscope, and it showed that the mass removed was not a tumor. Since the operation the strength in the affected hand had improved. She had had four convulsions. The case was presented as having a possible bearing on the question of astereognosis. Apparently the anterior central convolution had not been involved in the growth. It was probable that this convolution was the one having to do with motion, whereas the posterior central convolution had to do chiefly with sensation. In astereognosis the pain and temperature senses are not usually involved, whereas tactile and deep muscular senses are involved. It was known that the fibers of the two latter senses do not decussate in the spinal cord, but end in the columns of Goll and Burdach.

Dr. Leszynsky remarked that if the conjugate deviation were permanent, it would serve to substantiate Dr. Schlapp's contention.

Dr. B. Onuf said that he had seen a recent case exhibiting marked conjugate deviation together with a very decided ptosis on the left side, and on the right side a paresis of the abducens nerve. This deviation had come on after an apoplectic attack of hemiplegia. He did not think such a case could be explained by the involvement of the abducens nucleus; the lesion was evidently in the region of the third nucleus. It was possible that involvement of the posterior longitudinal fasciculus might explain the deviation. In his case the deviation was permanent. The affection of the right auditory nerve would confirm the theory that the abducens was affected.

Multiple Endothelioma of the Dura.—Dr. Hunt showed a specimen obtained from a woman, forty-five years of age, in the Montefiore Hospital. When fifteen years old she had become suddenly deaf. Two years before admission she had begun to suffer from headaches,

and these had persisted. There had been no vertigo. At times her legs would suddenly give way and she would fall. On admission, examination showed that there was a tendency to fall to the right, the right pupil was larger than the left, facial innervation on the right side was deficient, the tongue deviated to the left, the optic nerve showed choked disk, and weakness of the right upper and left lower extremities was very marked. The tendon reflexes were all exaggerated, but this was especially noticeable in the right arm and left leg. The right patellar reflex only was present. At the autopsy over one hundred tumors were found on the dura, aggregated chiefly about the falx, but extending over the convexity on either side. Four of the tumors were larger than the others. At the base of the brain the dura mater was free, but there were two tumors, the size of a pigeon's egg, occupying the interval between the pons and the medulla, and causing a pressure atrophy of the middle peduncles on each side. These tumors were found to be endotheliomata, and the vessels showed considerable calcareous deposit. There was no evidence of malignancy.

Glio-sarcoma of the Right Frontal Lobe.—Dr. Hunt also showed this specimen, taken from a man, forty years of age, who had been brought to Bellevue Hospital because he had fallen in the street. According to friends, he had been acting very peculiarly for the past four months. He was moderately emaciated, and the face was flushed. There was an incomplete left-sided hemiplegia with loss of skin- and tendon-reflexes on the affected side. He was stupid, but could be easily aroused to answer questions. He showed a strong disposition to turn everything into ridicule. There was no conjugate deviation of the eyes, and no aphasia. The pulse was not slow. At the autopsy, the meninges were found to be normal, but the convolutions over the right frontal lobe were flattened and very edematous. On making a section into this lobe, a large tumor had been found growing in the white substance. It had grown outward and downward into the frontal cortex. The tumor proved to be a glio-sarcoma.

Brain Tumors.—Dr. M. Allen Starr opened the discussion on this subject, reporting the following case: The patient was a boy of eleven years, who had come to him after treatment for malaria because of the persistence of morning headaches. These headaches had begun in June, and had gradually increased in severity up to October 8, when Dr. Starr had first seen him. The boy was then dull, spoke very slowly, and would drop asleep if left alone for a very few minutes. The left external rectus was a little weak; there was nystagmus and double optic neuritis. He had suffered from vertigo, and had vomited twice unexpectedly. His gait was quite ataxic, and the left limbs assumed involuntarily abnormal positions. There was no inability to smile, either voluntarily or reflexly. The ataxia of the right leg was very marked, and was associated with a peculiar involuntary position of the hand and arm. There was apparently no anesthesia on the left side, and no hemianopsia. A diagnosis of tumor of the optic thalamus had been made at once because of these forced positions. Dr. Starr said that he had seen such a case in Meynert's clinic in Vienna. Meynert considered these automatic movements and forced positions as a voluntary correction of a delusional state. The question of operation was not entertained. As the boy's father had died of general paresis, the boy was put on mixed treatment, and this had been pushed vigorously for a number of weeks. During this time the boy had grown steadily worse, and had had several collapses

accompanied by a pulse of 40 and rapid breathing. He had been last seen on October 26, and had been able then to understand what was said, but could not talk at all. He was totally paralyzed on the right side, and was able to turn the head only to the middle line. There was apparently no disturbance of sensation on the paralyzed side. The limbs were no longer held in stiff positions, but were relaxed, and the tendon reflexes were abolished. There was no complaint of headache. The pulse was 80, the respirations regular, and there was no fever. He died quietly on the following day. The autopsy revealed the presence of a tumor occupying the optic thalamus on the left side, which was enormously enlarged. It was completely infiltrated by a sarcoma. The tumor had apparently compressed the internal capsule, and had infiltrated all of the tissue of the tegmentum about the corpora quadrigemina. The ventricles were enormously distended with fluid.

Dr. Starr said that this case had led him to look over his private records of brain tumors for the past six years. He had seen in this time 25 cases of brain tumor. Fifteen of the patients were males, and ten females. All ages appeared to be about equally liable. The average duration of the disease had been eleven months, which was much shorter than generally stated. The tumors had been distinctly located in fifteen cases, and it had been possible to operate in four cases. No diagnosis of tumor whatever had been possible in two cases. One of these was a patient whom he had been asked to see because it was purposed to commit him to an asylum. There was a history of chronic alcoholism, some headache and morning vomiting; great mental irritability and imperfect memory. At times he was very violent with his family, though perfectly quiet in the presence of others. In the previous month, on two occasions, he had had sudden attacks of coma lasting about half an hour. Two days after this examination the patient had suddenly died, and the autopsy had revealed a large tumor occupying the left superior parietal convolution. The other case had been seen in consultation with Dr. Biggs. Several physicians had agreed upon the diagnosis of bulbar paralysis. There was no optic neuritis and no headaches. At the autopsy, a small tumor had been found occupying the entire medulla oblongata. No localization had been possible in 8 out of his 25 cases. In 19 an operation had been absolutely impossible, either because of the absence of a diagnosis or because the tumor was inaccessible. The operation had been done in 6 cases, and in 2 the operation had been successful in that the tumor had been found, but one of these patients had died. Therefore there had only been one patient out of 25 who had recovered. In one case, astereognosis had been considered the most important symptom of localization, and consequently the parietal region had been freely exposed, but no tumor had been found. In one case in which the tumor had been in the cerebellum Dr. McCosh had operated. To relieve the distention of the ventricles they were tapped and drained. Sixty ounces of fluid a day had been obtained from the lateral ventricles. The patient had finally died, and an infiltrating tumor of the cerebellum had been found. In another case of cerebellar tumor, the occipital bone had appeared at the operation worm-eaten, and had been the seat of such a profuse hemorrhage that further exploration had been considered inadvisable. In a summary of the cases of brain tumor made by him in 1896 it had been shown that about 7 per cent. of brain tumors were operable, and that of the cases operated upon about one-third recover from the operation. These earlier statistics had been made up from

a large number of cases by different operators, and had not been from his own records alone.

Dr. A. J. McCosh said that the case shown by Dr. Starr was an unusually favorable one for operation because of the accuracy of the diagnosis, the accessibility of the growth, and its freedom from vascularity. Most of the brain tumors that he had seen had usually caused considerable hemorrhage and severe shock. The statistics of these 25 cases seemed to him to come more nearly to the truth than the older ones giving a more favorable percentage.

Dr. Leszynsky said he wished to report the further progress of the case reported by him to the American Neurological Association. The patient had been suffering from symptoms pointing to a lesion in the motor area for nearly two years before coming under observation. The tumor had been found at operation to be an endothelioma of the motor cortex. The operation had been done two years and a half ago, and although the patient had relapsed more or less into a hemiplegic state, he had practically recovered. The localization in this case had been exceedingly accurate. No untoward result had followed the operation, and no additional damage had been done to the brain by the operation. The patient was still engaged as an accountant.

Dr. Onuf reported a case in which the localization had been very satisfactory. The history had begun in July, 1901, with slight jerkings of the shoulder and hip, followed by weakness of the leg and arm. About two months after the onset of the symptoms, the speaker had seen the patient, and although Dr. Onuf suspected brain tumor, he had placed the man on vigorous anti-syphilitic treatment for two weeks. A peculiar feature had been an affection of the abductors, flexors and extensors of the hip, while the extensors of the knee had been less affected, and the muscles of the feet hardly at all. The jerkings had been purely of the Jacksonian type. The case was remarkable because of the absence of headache and local tenderness. The diagnosis had been made—chiefly on the predominance of the affection of the central part of the extremities—of a tumor situated between the shoulder and hip centers, probably quite near the cortex. Immediate operation had been urged, but it had not been done for three weeks. The tumor had been found directly beneath the trephine opening. There was much softening, so that a sound could be introduced for two inches without encountering resistance. The microscope showed the tumor to be a glio-sarcoma. It had been impossible to remove all of the tumor.

Dr. Schlapp said that in his specimen there was an arterio-sclerosis with an increase of gliar cells and the deposition of calcareous material. He had not made the diagnosis of tumor involving the abducens nucleus entirely on the conjugate deviation, but the fact that the left side of the face had been weaker than the right had seemed to confirm the view.

Dr. Joseph Fraenkel said that he had seen a few days ago a boy of about eighteen, who claimed to have been well until struck in the back of the head by a swinging door. After this he had developed paralysis of the right third nerve, followed soon afterward by hemiplegia. He had been operated upon, and the base of the brain searched for a cyst, but none had been found. He had then been admitted to the Montefiore Hospital. There was paralysis of the left upper extremity and an enormous contracture, with less marked paralysis of the left lower extremity and some slight optic atrophy. Subsequently, inquiry had elicited the fact that his companions had noticed long before the accident that the boy showed a peculiar ten-

cy to laughter. Dr. Fraenkel recalled a case which had exhibited similar automatic movements to those reported in Dr. Starr's case. He had come to the conclusion that the tonus of the muscles was the most important factor in connection with the production of reflexes. He would like to know how absence of the reflexes could be explained in Dr. Starr's case.

Dr. Joseph Collins exhibited a photograph of an enormous tumor of the frontal convolution, which had been diagnosticated by an eminent neurologist and by himself as a tumor of the pons. His experience had gone to show that brain tumors are far more inoperable than was generally believed. Statistics had seemed to show that about seven to ten per cent. were operable, but when one came to sift these it was found that about three or four per cent. were operable. In his own experience but one case had been successfully operated upon, although the operation had been many times essayed. Dr. Bramwell, of Edinburgh, had contended that his own very large experience had utterly failed to confirm the statistics given by others regarding the operability of brain tumors.

Dr. Starr closed the discussion. He did not feel like subscribing to the statement of the last speaker concerning the almost universal inoperability of brain tumors, for, in his own series of 25 two had been distinctly localizable and operable. Accidental hemorrhage had caused death in one of these cases, and the other patient ought to live the usual length of life with only slight disability. It was true a great many cases of brain tumor successfully operated upon were reported, while many unsuccessful ones are not reported. Dr. Bramwell's statements were not borne out by his experience, for Dr. Bramwell had published 61 cases of brain tumor that had occurred in his own practice, and of this number there had been at least 7 that could have been successfully operated upon. Discouraging as the statistics were, it was right to operate upon every case in which the tumor could be distinctly localized and was accessible. He believed if in the case presented by him at this meeting the operation had been consented to when first advised, the patient would have recovered without any disability. The conjugate deviation referred to by Dr. Schlapp might occur not only from a lesion of the sixth nerve nucleus but from anything which interferes with the posterior longitudinal fasciculus between the sixth and third nerve nucleus.

PHILADELPHIA NEUROLOGICAL SOCIETY.

January 28, 1902.

The Vice-president, Dr. Charles S. Potts, in the chair.

A Case of Paralysis of the Face, Upper and Lower Limbs on the Right Side; and of the Tongue and Muscles of Mastication on the Left Side.—This case was presented by Dr. Wm. G. Spiller. Paralysis of one of the ocular muscles was also present, but Dr. W. C. Posey had had difficulty in determining which muscle was paralyzed. The case was diagnosed as one of multiple syphilitic lesions.

Dr. Edward A. Shumway said that he had made a brief examination of the patient and found that she had diplopia which increased towards the left, and increased markedly when the patient looked up and to the left. This indicated interference with the left superior rectus or the right inferior oblique. The patient's answers were uncertain, but there was apparently a paresis of the right inferior oblique.

A Case of Superior Tabes with Symptoms of Paretic Dementia.—This case was presented by Dr. Max H. Bochroch.

Dr. J. K. Mitchell said that tabes limited, or almost limited to the arms was very little mentioned in the text-books, Erb, Leyden, Vulpius and Hammond barely referring to it or omitting it altogether.

Dr. Weir Mitchell in 1888 reported the first case observed in the United States, the speaker the second one in 1894. It was curious that Dr. Bochroch's case and both these others should be in men making much use of their arms in their trades, as carpenters and masons.

In the speaker's case the trouble began in the right forearm and for a year or more was limited to that part. After six years the ataxia and impairment of sensation which were very great were still strictly limited to the forearms. There were some subjective sensations of discomfort in the feet. The gait was good, but the knee-jerk was totally absent. He walked without difficulty and had no lancinating pains except in the arms. When he was last heard of, three years later, the disease had progressed no further.

Dr. J. Madison Taylor referred to a case of Dr. Weir Mitchell which he had seen, one which had passed through the hands of a celebrated neurologist in London without the disease being recognized. The patient consulted Dr. S. Weir Mitchell for another matter. The tabes in the lower limbs was very slight. The ataxia in the arms was well marked. There were lancinating pains in the arms. The man had used his arms largely in out-door sports. He had first noticed diminution in his ability to use firearms. The general health was thoroughly good. Improvement set in in the arms and the legs grew worse. This was not the case reported by Dr. John K. Mitchell, but a second one occurring in his father's practice.

Dr. William G. Spiller said that Leyden had spoken of cervical tabes in 1876. Dr. Spiller referred to a case, the specimens from which had been sent to him about one year ago by Dr. S. S. Cohen. Symptoms suggesting syringomyelia had been present. It was a

case of superior and bulbar tabes, and was reported at the meeting of the American Neurological Association last Spring.¹ A number of clinical cases of superior tabes have been reported, but very few (probably not more than eight or nine), with necropsy. The case which he had studied was distinctly one of superior tabes associated with bulbar tabes. The lower cervical and the upper thoracic roots were degenerated. Strictly speaking, the term cervical tabes is a misnomer. The disease is not confined to the cervical cord, but in all the cases with necropsy studied the upper part of the thoracic cord has been involved. In the case reported by Drs. Cohen and Spiller, the lumbar cord was not diseased. The patient had been a carpenter, and therefore had used his upper limbs more than his lower.

Dr. F. S. Pearce suggested, in regard to etiology, the possibility that the primary cause in some cases of superior tabes was a latent meningitis. Many cases with symptoms of amyotrophic lateral sclerosis are probably of this character.

Dr. Alfred Gordon referred to the relations between tabes and paresis. A study of the literature shows that the association of paresis and tabes is more common than is generally supposed. The principal objection of those who think that tabes and paresis are not related, is the fact that tabes to arrive at its full development requires ten to twenty years, while paresis requires only a few years. A reference to the literature shows that this is not so. Barthelemy in 1878 reported a number of cases. Fournier has also collected five hundred cases of tabes, and has followed up a great many of them. In a large proportion of these cases, paresis developed after the onset of tabes.

Ocular symptoms are found in both diseases. The motor incoordination of tabes is analogous with incoordination of mentality in paresis. The etiology is also analogous. Paresis and tabes are often found in different members of the same family. The progressive character and the impossibility of arrest are analogous in the two diseases. An important fact is that those who have followed up their cases have always witnessed symptoms belonging to paresis. In the cases of incipient tabes reported by Westphal, Strümpell and Flechsig, symptoms of paresis developed very rapidly.

With regard to the knee-jerk in superior tabes, Westphal contends that if in superior tabes the knee-jerk disappears, it shows that the lumbar cord is involved. That, however, is not always the case. In one case in which the knee-jerks were absent, the autopsy showed no involvement of the lumbar cord. Symptoms of paresis were also present in this case.

Dr. Gordon referred to a case reported by Raymond in which a diagnosis of tabes had been made. Shortly before death cerebral symptoms developed, and the autopsy showed that it was a case of paresis.

Dr. Charles K. Mills said that he had come to the conclusion that the views of Raymond are correct that tabes and general paresis in their pure forms are essentially the same, that is to say, pathologically and patogenetically. The subject is one which requires somewhat elaborate discussion. He believed that the trend of opinion is in the direction referred to. He had, however, seen cases in which after many years of tabes, the patients became demented, but the dementia was not of the tabetic paretic type. In almost all cases of tabes of long duration, some cerebral symptoms and lesions can be found; and it is rare to find general paresis in which some spinal symptoms and lesions do not exist. It is the localization and

¹American Journal of the Medical Sciences, August, 1901.

the diffusion of the lesions which give us the clinical types—spinal in the one case, cerebral in another, and cerebro-spinal in a third.

Dr. William Pickett said the question of paresis in Dr. Bochroch's case was of interest. While cases of paresis supervening upon tabes dorsalis are sometimes spoken of as *ascending* paresis, this is not strictly correct, as the disease does not progress from tabes dorsalis to "tabes of the brain" by a continuity of lesion. If it did, we might expect these cases of cervical tabes to develop into paresis more frequently. Out of 149 cases of paresis which he had recently studied there were 5 of the ascending type. These five were all long-standing cases of tabes of the lumbago-thoracic region, and in 4 of them it was the classic form of paresis which developed, the fifth being a simple demented case. He had also seen dementia develop in long-standing cases of tabes, but this was the simple secondary dementia which we see in various forms of cord disease.

He also referred to an instance of paranoia in a typical case of tabes of some fifteen years' duration, with Charcot's joints. The man had hallucinations of hearing, persecutory delusions and considerable exaltation.

In Dr. Bochroch's case the prognosis would be very different according to whether the mental signs are referred to incipient paresis or to simple secondary dementia.

Dr. Max H. Bochroch remarked that in his case there were some of the classical symptoms of paresis, such as fibrillary contractions of the tongue and muscles of the face, hesitation in speech and slow mentality. These symptoms coming on during a short period of time, eighteen months, inclined him to regard the case as one of paresis, with beginning tabes.

A Case of Progressive Spinal Muscular Atrophy in which the Atrophy Began in the Extensors of the Hand and Fingers.—This case was shown by Dr. C. S. Potts.

Dr. Charles K. Mills said that such cases as this, although of a common type, were well worth presenting, as they caused us to be guarded with regard to positive opinions about the etiology of cases somewhat similar. This man had some features of lead paralysis. He retained the use of the stupinator on one side, while the muscles supplied by the posterior interosseous were largely wasted and weakened. At one time, he had very little atrophy of the muscles of the hand. At some period in its evolution a case of chronic degenerative disease may present a symptom-picture closely resembling that found in toxic disease.

A Case of Facial Tic in which each Series of Contraction was followed by Complete Paralysis in the Facial and Hypoglossal Distribution on the Same Side.—This case was reported by Dr. A. P. Francine and Dr. D. J. McCarthy. Dr. D. J. McCarthy said that the primary attack was probably hysterical, but following that the clonic convulsions of the face developed. He had seen the patient in an attack which came on with clonic movements of the right side of the face lasting from half a minute to one minute, and was followed by complete paralysis of the right side of the face and tongue, continuing from two to five minutes. This paralysis disappeared gradually, leaving some weakness. The ocular symptoms were negative, the reflexes were normal. Some hyperesthesia was present on the right side. He regarded the case as organic, with a cortical lesion, or as one with involvement of the seventh and twelfth nerves; more probably however as one of cortical lesion.

Dr. Charles K. Mills remarked that the history would indicate that the case was one of small cortical lesion in the facial area, as

shown by the recurrence of the facial spasm, and the clonic type of the spasm, followed by paralysis (Hughlings Jackson exhaustion paralysis). This form of paralysis is usually due to lesion which does not entirely destroy the cortex, but by irritation causes a severe discharge from certain cortical areas. The hypesthesia might be due to a similar discharge through the sensory cortical neurones which send their processes to the motor cortex, or it might be a hysterical epiphrenomenon. He did not lay any stress on the absence of optic neuritis in cases of small tumors of the cortex.

Dr. F. S. Pearce referred to a case which had been under his care, in which there were epileptic seizures involving the left side, particularly the arm, and these were followed by paralysis. The man probably had tuberculosis of the lung although no bacilli were found. There was no optic neuritis. Operation over the right motor cortex was advised, but the patient went home and died. No autopsy was made, but the speaker thought that there probably was a tuberculous abscess.

Dr. William G. Spiller thought that the diagnosis of a small cortical lesion was probably correct. It was noteworthy that there was no disturbance of speech. If in this case there were a basal lesion, it was strange that only the seventh and twelfth nerves were affected. While this was possible in meningitis, he considered it more likely that the lesion was cortical.

A Case of Poliomyelitis with Increased Knee-jerk. This case was shown by Dr. F. Savary Pearce. Dr. Charles K. Mills considered this to be a case of poliomyelitis. The explanation would be that the segment of the cord that has to do with the knee-reflexes is unaffected. He thought from his examination of the child that the quadriceps muscles were not in the same atrophied condition as those below the knee. He had seen a number of cases of poliomyelitis with retained knee-jerk.

Dr. A. A. Eshner stated that this patient had been at the Orthopedic Hospital a number of times, and it was recorded that the knee-jerks were "active." The records of this institution show that in many cases of poliomyelitis the knee-jerks are preserved, and in a few they are noted as pronounced. While exaggeration of the knee-jerk in cases of poliomyelitis is uncommon, its preservation is by no means rare.

Carcinoma of the Spine with Autopsy.—This paper was read by Dr. A. Buckley.

Dr. William G. Spiller said he had recently had a similar case with paraplegia, considerable pain and loss of the reflexes. Carcinoma of the vertebrae secondary to carcinoma of the breast was found. Within a few weeks he had seen another similar case of tumor of the breast with symptoms of compression of the cord, due to secondary growth in the vertebrae.

Dr. Wharton Sinkler said he had seen a case of carcinoma of the cord following carcinoma of the breast. The cord symptoms appeared about three months after excision of the breast. The lesion was evidently high in the cord as paralysis of the arms as well as of the legs was an early symptom. The patient lived three months after the development of the cord symptoms. No autopsy was obtained.

Dr. A. C. Buckley said that throughout the lumbar cord there was a marked increase in the amount of neuroglia. The nerve roots did not stain as other nerve roots. There was round-cell infiltration among the nerve fibers. The ganglion cells of the gray matter of the lumbar cord were very much affected.

Periscope.

Monatschrift für Psychiatrie und Neurologie.

(1902. Vol. xi. January.)

1. Symptomatology of Hemiplegia. H. OPPENHEIMER.
2. The Schleife, and the Centripetal Spinal Fibers from Deiters' Nucleus, the Quadrigemina, and the Substantia Reticularis. M. FROBST.
3. (Continued article.)
4. (Continued article.)
5. (Continued article.)

1. *Symptomatology of Hemiplegia.*—Babinski, of Paris, recently described a triad of symptoms, which he considered pathognomonic of organic, as compared with hysterical, hemiplegias. One of these is the manner of rising from the recumbent position. The hemiplegic, in so doing, flexes the paralyzed thigh on the trunk, and elevates the heel two or three feet from the bed; the functional paralytic does not. Oppenheimer claims priority in the description of this symptom. He further states that it accompanies all forms of spastic paralysis of the lower limb, and not hemiplegias alone. In case there be a hemiataxia in addition to the hemiplegia, it is betrayed by the grotesque, incoördinated manner in which the symptom produces itself.

2. *Schleife and Centripetal Spinal Fibers.*—The author's researches, which are based upon the study of degenerated tracts, establish the fact that the nucleus of Deiters is an intermediate station between the cord and the cerebellum, just as the nucleus ruber is between the quadrigemina and the cortex. Fibers arise in the cord, pass upwards in the anterior and antero-lateral columns, and end in Deiters' nucleus. These fibers are clearly demonstrated by the experimental method of degeneration, the tracts being stained according to Marchi. Further, after hemisections of the cervical cord, Deiters' nucleus is found to be atrophied. In addition to the two sets of bundles above mentioned, there is a third, which occupies the anterior area in the mid-brain. Collaterals pass from this fasciculus to the large ganglion cells of the substantia reticularis, and to the cells of Deiters' nucleus.

R. WEIL (New York).

Archiv. f. Psychiatrie.

(Bd. 35, 1901, No. 1.)

1. The Fornix and Corpus Mamillare. L. EDINGER and A. WALLENBERG.
2. The Course of the Cortico-thalamic Optical Fibers, their Terminations in the Tween and Midbrain, and the Visual Association and Commissural Tracts. M. PROBST.
3. A Case of Combined Systemic Disease of the Spinal Cord with Mild Anemia. M. RHEINBOLDT.
4. A Tumor of the Spinal Cord with Operation. Remarks on the Brown-Séquard Paralysis and the Course of the Sensory Tracts in the Cord. A. BOETTIGER.

5. A Contribution to the Frankenburger Ergotismus Epidemic and Its Permanent Consequences. YAHRMÄRKER.
6. The Neuroglia Findings in the Brains of Thirty Cases of Psychoses. J. ELMIGER.
7. Alterations in the Blood Vessels in Miliary Hemorrhages of the Brain. L. W. WEBER.
8. Encephalopathia Infantilis Epileptica. HUGO LUKÁCS.
9. The Propriety of Divorce in Communicated Insanity (Folie à deux). ERNST KALMUS.
10. Spinal Cord Changes in Diphtheria. S. UTCHIDA.
11. The Testing of the Sense of Hearing in Aphasia. TREITEL.

1. *The Fornix and Corpus Mamillare.*—The authors limit the conception of the fornix to those fibers arising in the cornu ammonis and passing by way of the fimbria to the corpus mamillare, and include certain radiations arising in the limbic lobe which join the fornix anteriorly beneath the corpus callosum. Other tracts, as the tractus cortico-habenularis, tractus strio-mamillaris and the *Scheidewandbündel* are excluded from the fornix proper. They divide the corpus mamillare into a large medial and a smaller lateral nucleus. Vicq. d'Azyr's bundle is in relation with the median nucleus, while the pedunculus corporis mamillaris arises in the lateral nucleus. Edinger obtained for examination the brains of two dogs which had been operated on by Goltz. From dog No. 1, the entire brain mantle had been extirpated, including the corpus callosum and the psalterium. The animal had survived the operation one year, so the anterior pillars of the fornix were totally degenerated. As the anterior thalamic nuclei were uninjured, both tracti thalamus-mamillares were intact. The corpora mamillaria were uninjured. The medial ganglia of the corpora albicantia in their anterior two-thirds were found atrophic. The posterior one-third was normal. In the anterior portion of the medial nucleus, its medullary mantle and the pedunculus corporis mamillaris were normal.

Dog No. 2 survived the extirpation of both frontal lobes about six months. Post-mortem were found, besides an extensive internal hydrocephalus, a traumatic softening of the left optic thalamus in its anterior portion with degeneration of Vicq. d'Azyr's tract; the fornix on the left was also degenerated. On the right both of these structures were uninjured. The left corpus mamillare was reduced to one-third its normal size. This atrophy was most marked in the anterior two-thirds of the medial ganglion, only slightly present in the lateral ganglion. The medullary capsule was thinner than normal. From the unaffected corpus mamillare fibers crossed the middle line, which decussation was absent on the atrophic side. The pedunculus corporis mamillaris was unchanged.

Edinger concludes that the fornices terminate almost wholly in the medial ganglia, especially its antero-lateral and dorsal portion. A few fibers pass in the von Gudden's fornix decussation to the opposite side. That the Vicq d'Azyr's bundle terminates in the medial nucleus ventrally, some fibers, however, passing to strengthen the medullary capsule. The nucleus lateralis stands in intimate relation to the medullary capsule and the pedunculus corporis mamillaris.

Dr. Wallenberg studied the course of the fibers in the fornix in rabbits and mice. Either the cornu ammonis or the fornix at the bend of the anterior commissure was interrupted, by passing a tentome into the brain. He found that no degeneration could be traced beyond the corpus mamillaris. Degenerations could be traced to the gray matter of the third ventricle (centralen Hohlengrau) and

the tuber cinereum. No degenerations could be traced from one cornu ammonis to the fornix of the opposite side. In house rabbits and white mice the fornix terminates in the ventro-medial portion of the lateral ganglion and in the lateral portion of the medial ganglion. In giant rabbits (riesen-Kaninchen) the fornix decussates to the corpus mamillare of the opposite side. That the same tract should have a widely different termination in different species the author considers a new and most important anatomical point.

2. *On the Cortico-thalamic Optical Fibers.*—The writer reviews the experiments of von Monakow, who examined the brains of young animals several months after unilateral extirpations of the visual cortical center. In rabbits and cats, von Monakow demonstrated a degeneration of the medullary mantle of the external geniculate body, of the cells and fibers of the pulvinar and the brachium of the anterior corpus quadrigeminum; the optic tracts were normal. A dog's brain after extirpation of both cortical visual centers showed degenerations on both sides in the pulvinar, medullary mantle of the external geniculate bodies, the anterior corpora quadrigemina and their brachia and the dorsal portion of the optic radiations of Gratiolet. Probst further conducted a large series of experiments on cats. The caudal portions of the first, second and third convolutions (occipital lobe) were destroyed partially or totally on one side. Serial sections were made of the entire brain, which had been treated by the Marchi method; the animals were killed from two to three weeks after the operation. By this method the degenerations from the cortex to the primary optical centers were obtained alone, and were not vitiated by retrograde degeneration of the centripetal thalamo-cortical fibers, as would occur in the atrophy experiments utilized in the now classical researches of von Gudden and von Monakow. Probst found degenerated the dorsal portion of the medial optic radiations of Gratiolet. The ventral portion of the same is represented by centripetal thalamo-cortical fibers (demonstrated by previous experiments). Degenerated were also the superior medullary layer of the anterior corpus quadrigeminum and the inner layer of the stratum zonale of the same. At the posterior portion of the anterior corpora quadrigemina, near the sulcus transversus, degeneration could be traced to the superior medullary layer of the opposite side, forming a commissure. This decussation has long been recognized anatomically, but this proves its commissural character in relation to the optical centers. Furthermore, degenerations in the dorsal and medial portion of the medullary fibers passing to the external geniculate body, slight degeneration in the thalamic stratum zonale coursing in the direction of the ganglion habenulae. Degenerations are traced across the corpus callosum in its posterior and dorsal portion (fornix minor) to the occipital cortex of the opposite hemisphere. Slight degenerations are traced anteriorly in the fasciculus sub-callosus. The same result was reached in all the experiments.

From previous studies of the brain by enucleation of an eye the writer concludes that the retina on one side communicates with the external geniculate body, the pulvinar and anterior corpus quadrigeminum on both sides; hence a bilateral representation in the primary optical centers, with the exception of the small commissure described alone as unilateral. In these numerous researches no direct degenerations could be traced from the central to the peripheral neurone or from the peripheral to the central. The terminations of cortical and retinal fibers in the anterior corpora quadrigemina near

the cells of origin of the *Vierhügel-Vorderstrangbahn* suggests the possible cause of reflex action. Probst believes with von Monakow that the primary and secondary optical neurones are connected by intercalary cells (*Schaltzellen*).

3. *Systemic Disease of the Spinal Cord and Anemia*.—A man aged twenty-eight years, after a prolonged exposure to cold, noticed a stiffness in the legs, which disappeared in three weeks. For one year his health was as usual; the previous stiffness then returned accompanied by ataxia, rapidly becoming paraplegia with bladder and rectal symptoms, loss of the tendon reflexes and decubitus. Pupils and skin reflexes normal, no pains, no paresthesia, no sensory disturbances except dulness of the pain sense shortly before death, which occurred eighteen months after the first exposure. Examination of the cord revealed a degeneration of the direct and crossed pyramidal tracts, increasing from above downwards; of the direct cerebellar tract, the cells and finer medial fibers of Clarke's columns; of the columns of Goll and Burdach, sparing, however, the posterior roots, Lissauer's marginal zone and the posterior root zone. Also a degeneration of the septo-marginal tract (*dorso-mediales Bündel*) in the lumbo-sacral region. The above sclerosis was strictly confined to the fiber systems. There was a moderate infiltration of the meninges and perivascular spaces with round cells; lymph spaces dilated from small hemorrhages of recent origin in the older areas of sclerosis. The blood vessels were thickened, but not obliterated. Because of the slight interstitial reversion with sclerosis but non-obstruction of the blood vessels, Dr. Rheinboldt would seek the cause in a toxemia, as suggested by Dana and Russel.

4. *Tumor of the Spinal Cord*.—The clinical notes are as follows: Three years ago a woman aged sixty-five years was seized with burning pains in the sole of the right foot, a swelling of the knee and sharp pains in the hip, also on the same side. A weakness in the right leg and very sharp stabbing pains in the left leg soon followed, which grew slowly but progressively worse. The examination showed an almost complete paralysis of the right leg, with exaggeration of the patellar reflex, ankle-clonus and Babinski phenomenon, and but trifling spasticity. On the left leg there was complete loss of the sense of pain and temperature extending upwards to Poupart's ligament anteriorly and the origin of the gluteus maximus posteriorly. The tactile sense was normal. The plantar reflex on the left was wanting, while the tendon reflexes were normal. On the right side corresponding to the navel anteriorly and the first lumbar spine posteriorly, and extending downwards the breadth of a hand, was an area of hypalgesia and diminished temperature sense. Within this was a narrow band of anesthesia. The muscle sense was lost in the right side. There was no hyperesthesia. Slight visual symptoms. The electrical reactions of the muscles of the legs and abdomen were normal. The abdominal walls were relaxed, their reflexes were absent. As the course of the disease was slow and progressive, a tumor was thought probable. Owing to its unilateral character and absence of irritative symptoms (no hyperesthesia, only moderate spasticity in right lower extremities, it was thought to be sub-dural, compressing and not infiltrating the cord. The analgesia pointed to the twelfth dorsal segment, but as in unilateral lesions this is uncertain (Sherrington and Bruns) the writer followed the motor indication and placed the lesion in the eighth dorsal segment, that is above the innervation of the abdominal muscles, which electrically were normal. The operation revealed a sub-dural psammoma compressing

the eighth dorsal segment; after its removal a dælla was left in the postero-lateral surface of the cord, but the posterior roots were not implicated. Hence the pains in the left leg, which were very violent, were of central and not "root" origin as was thought. The absence of tactile anesthesia in Brown-Séquard paralysis is not uncommon, and is attributed to a double representation in the cord. The author concludes that the fibers conveying sensations of pain pass through four segments of the gray matter before their decussation. Following the operation a very slight improvement in the motor and sensory symptoms is recorded.

5. *The Frankenburg Ergotismus.*—Dr. Yahrmark presents twenty cases of poisoning from bread made with ergot of rye, observed by Prof. Mannkopf twenty years ago, during the epidemic which infested the villages of Frankenburg; also the present conditions of these patients still surviving, which were studied by Prof. Tuczak at the same time. In the first group twelve were men and eight women, all under twenty years of age. In some the symptoms appeared immediately, in others weeks or even months elapsed before the onset. The first and almost constant symptom was a prickling sensation in the limbs and extremities (Kriebel-krankheit) with no accompanying sensory disturbance. To this were added stiffness and ataxia of the limbs, great weakness, somnolence, transient dementia and in fifteen cases epilepsy. Other symptoms were headache, vertigo, tinnitus, muscæ volitantes, choreiform movements, pains in the arms and legs, muscular spasms, loss of the control of the sphincters. In a few cases livid blotches appeared on the skin, ulcerations and vesicles with pustular contents. Hence the convulsive form predominated; the gangrenous form was only indicated.

One autopsy is reported in which the vessels of the cord were found much injected with hemorrhages, recent, and old, surrounding them; granule cells and a focus of softening in the lumbar region. Of those reported by Prof. Tuczak, who still survive, some of the following conditions had persisted, although many had made a complete recovery. Knee-jerks absent on one or both sides, or very feeble; easily fatigued, very forgetful, slightly demented, imbecility, cramps in the legs, hallucinations, delusions, epilepsy. The descendants show no tendency to nervous affections.

6. *Neuroglia in Psychoses.*—The first and second frontal, middle Rolandic and the occipital were the regions selected for examination by D. J. Elmiger. The Weigert glia stain, as published in 1895, was the method used. In two cases of paranoia, two of melancholia and one of chronic confusional insanity, no changes were found. Five cases of epilepsy were studied in all of which the glia distribution was normal, excepting one case with dementia; here the astrocytes were increased and aggregated into glia nests, forming isolated foci. Six cases of senile dementia and one of senile melancholia showed a thickening of the marginal glia, a perivascular gliosis, astrocytes and amyloid bodies. In seven cases of dementia paralytica, an enormous increase of the marginal glia and perivascular glia. The granulations in the ependyma also consisted of glia. In this group the changes were most pronounced. In all excepting the epilepsy with dementia the glia increase was diffuse. Where the glia was augmented there was a corresponding atrophy of the brain.

7. *Miliary Hemorrhages of the Brain.*—Dr. L. W. Weber gives the following clinical study. A laborer, aged sixty-four years, was admitted to the asylum with the history of a severe fall on the occiput sev-

eral months before. He had been excessive in the use of alcohol for years, denied lues, no neuropathic tendency was elicitable. Since the injury he had been subject to headaches and vertigo, transitory hallucinations, paraphasia and weakness on the left side, on which the tendon reflexes were exaggerated. While under observation he had a series of left-sided convulsions with unconsciousness. Post-mortem the meninges were found normal, the vessels at the base stiff. The surface of the brain was dotted with circumscribed hemorrhages, varying in size from a pin's head to a cherry. They were particularly numerous posteriorly. On section the same sharply defined hemorrhagic foci were seen in the cortex and adjacent white matter. Teased preparations of the cortical vessels disclosed no miliary aneurysms. The vessels of the cortex were sclerosed, thickened, hyaline in appearance. Where the process is advanced, veins cannot be differentiated from arteries; many vessels are obliterated, the small branches of which respond to the specific stains for iron; also observed in many ganglion cells (siderosis). The hyaline vessels show a peculiar lamellated structure, in some of which the cellular elements are seen coursing between these several layers, causing rupture. Many of the perivascular lymph-spaces are filled with a homogeneous substance in which all bodies may be discerned, containing fat and pigment granules. Some vessels show a peculiarity with van Gieson's method, the outer layers staining red, the inner yellow, attributed to cellular inhibition of iron. There was a marked perivascular gliosis. The writer classes the case as a senile dementia, receiving its peculiar features from the alcoholic element, although recognizing certain points as described by Binswanger and Alzheimer. Colloid degeneration was excluded because of staining tests. The above hyaline sclerosis remained undissolved by the action of acids and alkalies, and unstained by carmine and Weigert's fibrin stain. The amyloid reaction was absent.

8. *Encephalopathia Infantilis Epileptica*.—In the epilepsy of children Dr. H. Lukács refers to the great rareness of genuine epilepsy, the disorder being usually purely symptomatic and subordinate to an underlying brain condition (encephalopathy), associated with which some of the following organic changes are found: atrophy, sclerosis, degeneration, porencephaly and hypoplasia. As causative factors are mentioned: trauma occurring before, during or after birth, intoxications and infections (also intra-uterine), meningitis, encephalitis (Strümpell), rickets (Gowers). Clinically most cases with epilepsy present motor symptoms: hemiplegia, monoplegia, paraplegia, atetosis. Psychically the following are noted: mental restlessness, impulsive acts, constant change of mood, destructive, passionate, cruel with animals. The convulsions are often unilateral (Jacksonian), and if general, usually begin on one side; coma and unconsciousness are frequent. In support of the thought that stigmata in these cases are often acquired, the experiments of Lemoine, who produced asymmetry of the facial bones by injuring the brain in animals, are mentioned. In the majority of the cases an hereditary taint is not demonstrable. The most significant sign of degeneration, whether congenital or acquired, is considered a diminution of the power of inhibition, the easier elicibility of reflex action. For the above varied and long-recognized group of cases the comprehensive and formidable title is suggested of "Encephalopathia Infantilis Epileptica."

9. *Divorce in Communicated Insanity*.—Dr. E. Kalmus reports the following case. The patient, Mrs. M., of poor heredity and very questionable previous life, was married to her present husband in

1884. She was of a domineering and commanding nature, of which he was the reverse, being feeble and vacillating in character, with a worse heredity than the wife, having two sisters insane, one of whose children was imbecile. In April, 1896, the wife was admitted to the asylum, the husband having been committed six months previously; she had hallucinations of all the special senses with strange delusions of persecution, mostly of a sexual nature. The insane systems of herself and husband were intimately intertwined and were never inimical to one another, but rather of a protective character. The man was discharged in November, 1897, while the wife still shows no amelioration in her symptoms. It was noted that whenever husband and wife had met in the asylum, which happened at rare intervals, the man's symptoms were always aggravated. A female patient with whom Mrs. M. had daily intercourse, a mild paranoiac, became much worse under her influence, her delusions taking the same violent character as Mrs. M's. After separation she soon returned to her former state. The fact that Mrs. M's son had also presented transitory symptoms of hallucinations of hearing is also of interest. The writer believes this to be a case of induced insanity (*folie communiquée, inducirtes Irresinn*), the strong paranoiac system of Mrs. M. finding a favorable site for implantation and development in Mr. M. As is usual in such cases the source of the evil remains permanently affected, the victim recovering. Mr. M. was allowed a divorce.

10. *Spinal Cord Changes in Diphtheria.*—Dr. S. Utchida refers briefly to the pathological changes in the nervous system hitherto described: congestion, hemorrhagic softening and thrombosis; degeneration of the cells of the anterior horns with or without degeneration of the myelin in the peripheral nerves; degenerations in the peripheral nerves alone. The changes described by Katz (1897) with the Marchi method receive especial attention. They consisted of an indistinctness of cell body and nucleus, fine black granules in the cell body, some of which were cleft or in fragments. Many cells were normal. In the white matter numerous minute, semilunar, black masses were seen on the surface of section, either in direct apposition with the axis cylinder or between the fibers in the interstitial structures. On longitudinal sections the sickle-shaped changes in the nerve fibers were of short extent only, the fiber above and below presenting a normal appearance (*fleckiges Aussehen*). The same change was noted in the peripheral nerves and most pronounced in the anterior and posterior root fibers. Katz based his observations on the study of three cases with moderate paralysis; medulla, cord and nerves of all were examined by the Marchi method. Dr. Utchida examined the cords of twelve cases with diphtheria without paralysis, and one of diphtheria with paralysis. In seven of these cases the minor spinal changes described by Katz were found with the exception of the cleft and fragmented cells. In two cases the changes were present, but slight, and in two cases were absent. In addition six cases without diphtheria were examined; in two the black granules in the cells and partially degenerated segments in the nerve fibers were noted; in two, present but trifling, and wanting in two. Hence Dr. Utchida concludes that this condition is in no wise peculiar to diphtheria, but is normal, or at least found in diverse pathological states, that the particles staining black with the osmium (Müller) mixture is not a degenerative, but an infiltrative product (fat). The variability in this change after perusing the clinical records of these cases, he believes is explained by the age. This infiltration fat in the

nervous system is not found until about the fourth year. This peculiarity of the ganglion cells had been noted previously by Rosin (1895).

11. *Hearing in Aphasia*.—Dr. Treitel mentions the importance of differentiating the cerebral from the labyrinthine form of deafness; also the great rarity of the absolute loss of the perception of sound or speech in the above types. Prof. Bezold demonstrated the important fact that the range for vocal audition was from B of the third octave to G of the fourth octave. He devised a continuous series of tuning forks including the various tones of this range. By this means he showed conclusively that many deaf-mutes, who in general could not hear, perceived a number of these tones. Dr. Treitel concludes by presenting a case as demonstration, which will not bear abstraction.

J. R. HUNT (New York).

Revue Neurologique.

(1902. Vol. 10, No. 1, January 15.)

1. Two Cases of Syringomyelia. E. HUET and R. CESTAN.
2. Sub-Cortical Motor Aphasia. LADAME.
3. Mental Confusion and Cerebellar Syndromes during Uremia. Effects of Lumbar Puncture. G. SCHERB.

1. *Two Cases of Syringomyelia*.—The authors sum up the story of their two patients. Little by little, without fever but rapidly, a muscular atrophy of a myelopathic character took place, associated with sensory and motor troubles. These sensory motor troubles could be caused only by a syringomyelia; this diagnosis, indeed, was given without discussion for the first patient. There was for its proof the complete dissociation by the syringomyelocle of sensibility, muscular atrophy with fibrillary twitching, modifications of electrical reactions, spasmodic paraplegia, and finally, the progress of the affection. In the case of the second patient there was neither this complete dissociation of sensations nor the spasmodic paraplegia. It is very well known that these two signs may fail in the course of syringomyelia. Indeed, in this disease, one rarely proves, the authors think, the complete dissociation of sensibility. There is rather the incomplete dissociation, that is to say, a hypesthesia to simple touch sensation associated with analgesia, pricking and temperature sensation. On the other hand the absence of spasmodic paraplegia simply shows the soundness of the pyramidal region to be unaffected by glioma. Besides, syringomyelia is the only affection which can explain the appearance and slow progress of muscular atrophy of a myelopathic character, and the additional sensory symptoms. In these cases the sensory affections were very strictly localized in certain root regions well delimited, corresponding exactly to those figured by Kocher: the root territory above the brachial plexus and the cervical root region, in the first case; the roots below the brachial plexus and the region of the dorsal roots in the second. Moreover, this root distribution is demonstrated from the standpoint of both motor and sensory symptoms. In the first patient there was a particular injury to the muscles corresponding to the higher roots of the brachial plexus, and also to a slight degree, especially on the right, to the muscles corresponding to the third and fourth cervical roots (trapezius). It was noted, moreover, in this patient, that the gliomatous process extended unequally to the anterior and posterior cornua, while sensation was a little more affected on the right than the left, motility was affected more on the left than the right. In the second

patient only the muscles corresponding to the lowest roots of the brachial plexus were attacked; in these the lesions of motility, as those of sensibility, were much more accentuated on the right than on the left. The authors emphasize the marked character of the syringomyelic dissociation of sensations in the first case, dissociation as perfect as in a case of spontaneous hematomyelia, observed at the Charcot clinic: simple touch was perfectly preserved without error in localization, without hesitancy; sensations of pricking and temperature were abolished to repeated stimuli. The patient had been examined at intervals of weeks without the possibility of finding any modifications in sensibility. The only differences found were hypesthesia in the peripheral zones; in one of the last examinations a mild hypesthetic zone for pricking sensation was found, which was prolonged externally in a line from the upper part of the arm to the wrist.

2. *The Question of Subcortical Motor Aphasia.*—Dr. Ladame, of Geneva, concludes as follows: (1) That the symptoms erroneously considered as characteristic of motor aphasia, called subcortical, are observed in cortical lesions of the frontal operculum. (2) That agraphia is by no means the necessary result of a lesion at the base of the convolution, as Broca, with certain authors, has maintained (Gowers among others). (3) That above all things the classification of motor aphasias as cortical and subcortical, must be given up as answering neither to clinical reality nor pathological anatomy.

3. *Mental Confusion and Brain Syndrome.*—MM. Pierre Marie and Georges Guillain have had excellent results from employing lumbar puncture for the persistent head troubles in Bright's disease. This case is reported both on account of its derived symptomatology and the rapid and evident relief brought about by lumbar puncture. A man forty-nine years old, a custom officer, entered the hospital August 3, 1901. He sat with his acutely aching head between his hands, leaning towards the right; he could scarcely understand or speak, his pupils were myotic. He finally pointed with his right hand to the occiput as the seat of his agony. Unfortunately, days before, a blister had been placed at the nape of the neck on suspicion of an encephalic tumor. He had been well until 1898, when he had had a mild, though long typhoid, treated copiously with antipyrin. After recovery he often suffered from violent headaches, which were unsuccessfully treated by all known analgesic methods. This headache had come a fortnight before and constantly increased. There were certain hallucinations of hearing, he answered unasked questions and confused people's identity, vomited suddenly and had double vision and insomnia. The knee reflexes were exaggerated; no sign of Babinski, but there was clonus of the left foot. The reflexes of the upper limbs were excessive, particularly the left. No atrophy or deflection of the tongue or any peripheral sign of basilar lesion. By a great effort he rose, and after many trials turned to the left. The percussion of the skull was painful in the entire occipital region. There were minor symptoms, and the man appeared to have atheroma; the headache was thought attributable to Bright's disease. There was mental confusion and cerebellar syndrome. Urine examination gave 4 gm. albumin to the liter. Uremia was diagnosed and a milk régime begun. The following day there was no improvement, and the patient responded to no questions; pulse was very weak and there were signs of chemosis; no other trace of cutaneous edema. Under these conditions lumbar puncture was proposed and performed immediately. Twenty cc. of clear liquid were drawn which first ran in a full

jet. Afterwards examination showed that it was mainly albuminous. The puncture was made at eleven in the morning. At two the next night the patient seemed awake, while at four he regained consciousness and answered questions. He confirmed the theory that he saw double, and for a week was troubled as though by a cloud, but the vertigo was much decreased. The occipital trouble entirely disappeared. On rising, his gait was uncertain, but there was no lateropulsion. The clonus of the left foot had disappeared and the reflexes were not exaggerated. In 1,200 cc. of urine there were 2 gr. 50 of albumin to the liter. The tongue was clean. On the sixth of August he went home. The milk diet raised the amount of urine to three and four liters, where it kept for about a month without headache or edema. He went out and apparently recovered good health for about a month and a half. Then torpor with frontal headache and some of the minor symptoms recurred. In three days there was a pronounced edema strictly limited to the cephalic segment; forehead, eyelids, cheeks, lips, ears and scalp were swollen, while neither the neck nor the rest of the body was affected. There were galloping heart sounds, sudden vomitings and continued hiccough; the former stupor was present. A second puncture was performed, and 30 cc. of liquid taken. There was relief of only short duration. During September the symptoms returned, becoming more serious each day until the 29th, when he died in a state of coma. This case appeared doubly interesting both clinically and in its therapeutic results because of: (1) Unusual symptoms of cerebral uremia causing confusion as to a mental or a cerebellar syndrome. (2) Evident and favorable effect of the first puncture (20 cc.), and favorable, but brief results of the second (30 cc.). The author remarks that one cannot help comparing this angioneurotic edema of the head with the arachnoideal edema which seems attributable to cerebral accidents. It would seem that in the central nervous system, the bulbs if irritated or compressed, bring about this cutaneous edema.

JELLIFFE.

Archives de Neurologie.

(1902. Vol. 13, No. 74. February.)

1. A Study of Six Cases of Benign Hystero-Alcoholic Paralysis of the Upper Extremity. J. GAURAUD.
2. Extension and its Application in the Treatment of Nervous Diseases. P. KOUINDJY.

1. *Hystero-alcoholic Paralysis.*—An interesting series of cases of which the principal characteristics were the following: All the patients were strong, well-developed men in the prime of life with every appearance of perfect health; but all were more or less addicted to excessive indulgence in alcohol, two of whom had been intoxicated a few hours before the onset of paralysis. In two instances the paralysis appeared during the night, in the remaining four during the day; in some cases the onset was sudden, without prodrome; in others slow, following slight pain in the cervico-dorsal region. Its appearance was generally accompanied by some numbness or tingling; but there was in no instance indication of traumatism or apoplexy, neither was there vertigo or severe pain. With the exception of one patient, the right upper extremity was affected, the condition being most marked in, and in several instances limited to, the hand and wrist; extensors and flexors were alike affected, motor impotence varying in the different cases. Anesthesia and analgesia were noted, but did not always correspond to the paralyzed area;

vasomotor and secretory disturbances were exceptional. The visual field was found to be narrowed in five cases. Analgesia to energetic faradization lasted several minutes, and its gradual disappearance coincided with the return of motility. This mode of treatment was efficacious in every case, a cure being effected, in some instances, by one application.

2. *Extension in Nervous Diseases.*—“What is the effect of suspension upon the nervous system in general, and upon the spinal cord in particular?” is the question the author proposes for solution. Hégar, the originator of treatment by elongation, holds that the spinal column is lengthened 35 m.m. or more when the body is bent toward the lower extremities, and that the dura mater participates in this elongation to the extent of 25 to 34 m.m. The favorable effects of this method of treatment is regarded by most observers as due to cerebro-spinal hyperemia. Bogroff is quoted as stating that “Suspension acts by production of hyperemia and elongation of the neuroglia; that is, as a mechanical measure which alters in a special manner the nutrition of diseased tissue. Measurements of human subjects, taken in Charcot’s clinic, before and after extension, are tabulated by the writer, and show a difference in degree of elongation between the cervical and dorsal regions, the change in the former being generally greater. Though the anatomo-pathologic influence of extension may be questioned, the author believes its influence upon symptomatology is undoubted. Raymond says: “Of all methods of treatment applied to tabes dorsalis, suspension is the most hopeful.” A long list of observers record respectively, improvement in incoordination, insomnia, Romberg’s symptom, paresesthesia and anesthesia, vesical and rectal disturbances, vertigo, hearing, ocular affections, etc., from treatment by extension. Contraindications to suspension as formulated by Raymond, are given as follows: (1) Cardio-vascular lesions in tabetics; (2) tubercular and emphysematous conditions; (3) apoplectiform or epileptiform attacks; (4) anemia and tendency to vertigo or syncope; (5) obesity. The writer concludes that extension is the only form of suspension which should be retained as an indispensable therapeutic measure in the treatment of nervous diseases; its application by means of the inclined plane being most desirable, and that therapeutically it should rank with the classical remedies, electro-therapeutics, specific treatment, etc., and should be essayed in all cerebro-medullary affections.

R. L. FIELDING (New York).

Rivista di Patologia Nervose e Mentale.

(1902. Vol. 7, fasc. 1, January.)

1. Comparative Study of Corpuscular Resistance in the Insane and Normal Aged. G. OBICI.
2. Clinical and Histological Facts Concerning Softened Areas Surrounding Certain Tumors. G. B. PELLIZZI.

1. *Corpuscular Resistance.*—This article deals with the question of hemolysis in the aged, the method used for establishing the hemolytic process being that of Hamburger-Mosso, with Viola’s modification. The fact has been established that not all red cells are alike isotonic, and that all do not give up their chromatic substance to solutions of the same concentration; thus has arisen the distinction between corpuscles of medium resistance spoken of technically as R. M. and those of minimum resistance R. Min. Deductions drawn from the present study were that: (1) R. M. in healthy individuals

remains within normal limits up to the seventieth year, when it decreases; (2) pathological senility manifested only by feeble mentality without complication of other grave psychical or physical disturbances, has no influence upon the hemolytic process in old age. (3) Increase in R. M., which indicates in certain conditions presence in the blood of a large number of young cells, may have a pathological character and even render the prognosis unfavorable in some cases, as does diminished corporcular resistance ordinarily.

2. *Softened Areas Surrounding Tumors.*—This paper gives the findings at autopsy and histological examination in a case of epilepsy beginning after the fortieth year followed by monoplegia, hemiplegia and final dementia. A tumor was found in the motor area of the right side of the brain, occupying a cavity filled with transparent pale yellow fluid, containing fragments of softened neural tissue. The diagnosis of brain tumor was not made during life. A peculiar clinical feature was entire absence of the most characteristic symptoms of cerebral tumor, there being no headache, vomiting, or subjective disturbance of the organ of vision. An interesting study of manifestations in life, viewed in the light of post-mortem findings, is given. The histological analysis is too extended to be given within the limits of this abstract; suffice it to say that the tumor was an endothelioma developed from the meninges, rich in elements of probable sarcomatous nature and devoid of nervous elements; the surrounding liquid containing polynuclear neuroglia cells and fragments of neural fibers, etc. Noteworthy is the slow progress of the malady, the patient surviving twenty-five years after the onset of symptoms.

R. L. FIELDING (New York).

Neurologisches Centralblatt.

(1902. February 1, No. 3.)

1. Further Contribution to Asthenic Paralysis, with one Autopsy.
S. GOLDFLAM.

2. Concerning the Eye-reflex, or the Eye Phenomenon. By v. Bechterew.

3. The Corneo-mandibular Reflex. By v. SÖLDER.

4. A Case of Early Tabes. By M. BLOCH.

1. *Asthenic Paralysis.*—A report of an interesting, but not unusual case of asthenic bulbar paralysis, with a very careful clinical and pathological report. A discussion of the latter is carried over to the following number.

2. *The Eye-reflex.*—Von Bechterew discusses in this article the reflex described last year by McCarthy as the supraorbital reflex, and claims priority of discovery, although he admits that outside of the Society reports he had not published his paper until after the publication above referred to. He agrees that the reflex is partly a true nerve reflex, and partly due to a mechanical irritation transmitted along periosteal, muscle and tendon fibers to the orbicularis muscle. He insists that the reflex may be elicited from the temporo-frontal region, the nasal region, and not seldom from the zygomatic arch.

3. *Corneo-mandibular Reflex.*—Sölder describes a new reflex in the distribution of the fifth nerve. It is elicited by corneal irritation and results in a slow, sometimes a quick, lateral movement of the inferior maxilla. The jaw must be held partially open and released. The reflex arc consists of the first branch of the trigeminal, the fifth nu-

cleus, and the third branch. He thinks it may be of some value in localizing lesions at the base of the brain (Hirnstamme).

4. *Early Tabes*.—Bloch reports a case of tabes in a girl of seventeen years. Argyll-Robertson pupils, loss of reflexes, ataxia, bladder and sensory disturbances were present. Puberty had not yet developed. There was no history of syphilis in father or mother. The other children were healthy. Precordial distress, with palpitation and fear, occurred occasionally in this girl, and were considered by Bloch to be possibly "heart crises." McCARTHY (Philadelphia).

Nouvelle Iconographie de la Salpêtrière.

(1901, 14th year, No. 5, September-October.)

1. Pathological Anatomy of Hereditary Cerebellar Ataxia. SWITALSKY.

2. Researches Upon the Anatomical Structure of the Nervous System of an Anencephalus. N. VASCHIDE AND CLAUDE VURPAS.

3. A Case of Hysterical Breast. LANNOIS.

4. Paralysis of the Ulnar Nerve with Contractures Resulting (Main en Pince). JACINTO DE LEON.

5. A Case of Ostitis Deformans of Paget, with Melanodermia. Autopsy. L. HUDELO AND J. HEITZ.

6. The Influence of the Work of One Muscle Upon the Activity of Other Muscles. CH. FÉRÉ.

1. *Hereditary Cerebellar Ataxia*.—Pierre Marie first differentiated this disease from Friedreich's disease, with which it has many similarities. The author of this paper has had the opportunity of studying two cases in the service of Marie and of making a microscopic study of the nervous system in one of them. A careful clinical account of these cases has been published by Klippel and Durant in the *Revue de Médecine*, Oct., 1892. A résumé of the pathological findings in this case is the following: Degeneration of the fibers in the column of Goll, in the direct cerebellar tracts, in Gowers' tract. Atrophy of the grey substance of the cord with disappearance of the cells. In the medulla degeneration of the direct cerebellar tract and of Goll's column. A considerable atrophy of the direct cerebellar peduncular fibers, proliferation of the ependymal connective tissue of the fourth ventricle and of the aqueduct of Sylvius. In the cerebellum there was a diminution in the number of convolutions, and the fissures were very large. In the cortex there was found a non-stainable zone lying between the granular and molecular layer. Reduction in volume of the white substance. Atrophy of the right optic nerve. There is a disappearance of the large calibred fibers and a considerable augmentation of the small ones in the peripheral nerves and in the nerve roots. Hypoplasia of the blood vessels. The results of the anatomical study of these cases, as compared with the few cases found in literature show striking differences but, as a whole, the lesions are similar. The author formulates the following tentative theory to explain the pathogenesis of hereditary cerebellar ataxia: An individual who is to suffer with this disease, comes into the world with a weakened nervous and vascular system. This weakness is confined more or less sharply to the cerebellum and its nerve tracts. Up to a certain age there exist no symptoms referable to the nervous system because the vascular system, though below the normal, suffices for nutrition. At the moment when the fibers already weak become more rigid on account of age or some other cause, they can no longer nourish the nervous system.

The parts with power of resistance do not show any effect from the lowered nutrition, but the weakened parts do. In the beginning the symptoms seem to have but little significance; they are vertigo, fulness, etc., all however, pointing to their cerebellar origin. Later, the nervous system begins to react to the lessened nutrition and atrophies. This atrophy is shown in the beginning by diminution in volume of the fibers, which causes a lessening in volume of the cord, bulb, etc. At this stage, the symptoms become typical of the disease. If the patient dies at this time, we find a simple atrophy of the nervous system, as in the cases of Nonne and Fraser. If the condition persists, or if the vascular system is especially weak, the degeneration of nervous fibers results and extends not only to the cerebellum, but to the rest of the nervous system as well.

2. *Anatomy of Anencephalus*.—A careful microscopic study of the nervous structure of an anencephalus. This paper is a continuation of two former articles by the same author on the psychology of the vital acts of an infant with total absence of brain and the biological life of an anencephalus. The following conclusions are noted in a résumé of the physiological and anatomical data observed in this study: (1) Spontaneous movements or associated movements are possible in spite of the total absence of the pyramidal tract. The function of the pyramidal tract is inhibitory rather than dynamic; (2) the nerve-cells were found definitely degenerated throughout the whole extent of the nervous axis; the sensory-motor reaction was present; (3) in spite of the advanced state of degeneration found in the nerve-cells, the nerve-roots presented no lesion or evidence of degeneration; (4) in spite of the pathological condition of the nervous system and especially of the nerve-cells, the muscles were normal in form and in motility; (5) at the level of the quadrigeminal bodies two symmetrical nuclei were found composed of motor cells. As the third and fourth pair of motor nerves were missing, this might be the location of the superior facial nucleus; (6) in the cord behind the anterior commissure, crossed fibers going from one anterior horn to the other were observed. These fibers explain perhaps the synergical movements which took place in spite of the absence of long motor fibers; (7) the absence of the restiform bodies and the arciform fibers was explained by the absence of the cerebellum. The inferior and the para-olivary bodies were found wanting. This is a further proof of the intimate relation of the cerebellum with the cerebrum. (8) Dilatation of the ventricles and the continuation on each side of the ependymal elements with the adjacent tissues were noted; (9) increase in number of the neuroglia cells; (10) inflammatory process involving the nervous tissue, the meninges, and the blood vessels. This case can be considered as a natural experiment in physiology and it tends to prove that a rudimentary biological life exists which is independent of the functions of the superior nervous centers.

3. *Hysterical Breast*.—Clinical résumé: Woman aged forty-seven years; hysterical symptoms; convulsive attacks; globus, painful sensations, polyuria, pollakiuria, permanent stigmata as profound anesthesia of the right side, hyperesthetic zones over ovaries and breast, hysterical clavus, etc. For fifteen months without any appreciable cause, the breast has become the seat of painful sensations, cutting and burning in nature. At the same time, there was such a marked increase in its size that, in the belief that she was attacked by cancer, she entered the surgical division of the hospital for operation. The right breast was found to be enormously hypertrophied,

the left normal in size. The skin over both breasts is normal. Hysterical breast shows itself most commonly by symptoms of neuralgia, the so-called "mastodynias." Simple hypertrophy of the breast is always unilateral and is less common.

4. *Paralysis of Ulnar Nerve*.—Two cases of contracture following a paralysis of the ulnar nerve. In both cases a peculiar attitude of the hands was produced, which Dupuytren has described in connection with the retraction of the palmar fascia. The author calls this attitude "main en pince." Case I. Paralysis of the ulnar nerve following prolonged anesthesia for laparotomy. The left hand remained contracted. The first phalanges were in forced extension, the second and third in slight flexion; extension and flexion more accentuated in the fourth and fifth fingers. The fingers abducted, the tendons of the long extensors very prominent on the dorsal aspect. Movements of abduction and adduction abolished. Voluntary flexion of the fingers very feeble? Adduction of the hand abolished. It was impossible for the ends of the fingers to touch each other on account of the limitation of motion; this was especially marked in the ring and little fingers. Case II. A man, seventy-eight years old; thirty years before was struck with a bullet in the internal and inferior aspect of the arm. This produced a painful paralysis of the hand and finally led to the following condition of the fingers: The last three fingers in forcible flexion, the third phalanx upon the second, the second upon the first, and the three fingers upon the palm of the hand. This flexion was so forcible that the nails were driven into the skin. The thumb and index finger functionate normally, at least for flexion and extension. In the first case hysterical contraction was considered as a possible factor, but it was excluded. The article is illustrated by beautiful photographs.

5. *Ostitis Deformans*.—A report of the microscopic findings of the bones, viscera and nervous system of a case of ostitis deformans of Paget. The findings in the nervous system were not marked enough to attach to them any great importance in an etiological way. The paper is a very complete one, containing many excellent photographs of the bone lesions, as well as a full discussion of the cases in literature. An abstract of this paper from the neurological standpoint does not seem to be indicated.

6. *Influence of Muscular Work*.—No abstract of this article is practical, on account of the complicated mass of experimental data.

S. SCHWAB (St. Louis)

MISCELLANY.

ACTION OF BACTERIAL POISONS ON PERIPHERAL NERVES. Dopter and Lafforgue. (Archives de Médecine Expérimentale, July, 1901.)

These authors have gone completely over this subject by the experimental inoculation of a large number of such substances. They employed diphtheria toxin, tuberculin, bacillus pyocyanus, streptococcus, staphylococcus, pneumococcus, pneumobacillus and cholera and pest toxins. Soluble products of the colon bacillus gave practically no results. These various substances were inoculated locally around the peripheral nerves of guinea-pigs. Account was taken of the clinical symptoms produced and a microscopical examination of the nerves was made. They believe that inflammations of the peripheral nerves of infectious origin are due to the action of bacterial substances circulating in the peripheral blood-vessels. These penetrate by dialysis into the interior of the nerve

fiber at its most vulnerable point, the nodes of Ranvier. They exert a necrosive chemical action on the elements of the interannular segment sometimes the axis-cylinder being relatively more affected than the other parts. The entire picture resembles a peri-axillary segmentary necrosis. If the axis-cylinder submits to grave alterations rupture and fatal degeneration follow, accompanied by the characteristic symptomatic conditions.

HIGLEY.

TABES AND DIABETES. W. Croner (*Zeitschrift für klinische Medicin*, 1901, Vol. 41, No. 1-4).

Many symptoms are common to both tabes and diabetes and even with positive signs it may be doubtful for some time whether one is dealing with the transient glycosuria of the nervous disorder or with a diabetes in which the neuritic symptoms are most prominent. According to the author both diseases rarely occur together. Among symptoms characteristic of both may be mentioned irregular areas of anesthesia or analgesia, paresthesiæ, especially about the legs and sexual organs, increased sensitiveness toward cold, lancinating pains, diminished sexual vigor, and trophic and secretory disturbances, such as malum perforans pedis, decubitus, hyperidrosis and muscular atrophy. Even Westphal's sign may occur in diabetes, but is of no prognostic importance. In those few cases, however, where both diseases really occur together, it may reasonably be asked whether this is accidental or whether some common etiological factor exists. The rarity speaks for coincidence, yet diabetes and tabes have been seen in different members of the same family, and diabetes has occurred after injury to the cord. Diabetes insipidus may occur with tabes and it is admitted that the former not so seldom develops into diabetes mellitus. Finally, syphilis is looked upon by many as being capable of producing both disorders.

UEBER DIE KLINISCHEN FORMEN DER GEFÄNGNISSPSYCHOSEN (The Clinical Forms of Prison Psychoses). Rüdia (*Allg. Zeitschrift für Psychiatrie*, 1901, lviii, 2 and 3, s. 447).

After reviewing briefly the opinions of different authors since the middle of the last century, the author gives the results of his investigation of the cases of insane prisoners at Heidelberg during nine years. There came under his observation 94 cases, 84 men and 10 women. Among these he found by far the most frequent clinical type to be katatonia, which occurred in 50 cases (or 55 per cent.). This form again he divides into three groups, the first and largest being what he calls the "vagrant group," in which, after a somewhat variable period of normal development, order and industry, the young patient gives up work and takes to wandering about, begs and finally commits petty thefts which bring him into conflict with the authorities. There may be no marked mental symptoms other than the above, or there may be even before arrest, symptoms of katatonic or hebephrenic character. His second group is that of "habitual criminals," persons who from youth have been addicted to theft, violence and other crimes, who prior to imprisonment have shown no definite symptoms of insanity, but who during confinement (and generally in solitary confinement) develop katatonic symptoms. The third group consists of his "occasional criminals," who have been in the main normal, but who develop katatonia during solitary confinement on account of a single grave crime.

Next to katatonia in frequency, he has found the alcohol psychoses, in all 9 cases, of which 6 were of delirium tremens and 3 of chronic alcohol "Wahnsinn" (delusional insanity). Next came epilepsy

and hysteria, of the first 8 cases, of the second 3 cases. Further he encountered 2 cases of imbecility, one of "chronic paranoia in epilepsy (Buchholz), and 3 cases of "paranoia (Kraepelin)." In the remaining cases the diagnosis could not be made with certainty owing to imperfect anamnesis or too short observation. In all the cases it was evident either that the mental disturbance commenced before the imprisonment or that it lasted longer than could be accounted for by the injurious influence of confinement. Also that the types of disease were such as commonly occur in persons who never have been imprisoned.

That there is any special form of insanity peculiar to prisoners seems negatived, but study of the Heidelberg material shows that every form of psychosis occurring in a prison may present at least temporarily a symptom-complex, made familiar by various authors, and consisting in the presence of hallucinations especially of hearing (promises of pardon), delusions of persecution and unseen influence, anxiety, uneasiness and irritability. This symptom-complex is not specially dependent upon solitary confinement, but occurs also in collective confinement. It is noteworthy that the above symptoms occur not only in forms of mental disease in which hallucinatory episodes are common, but also in those in which hallucinations of hearing are excessively infrequent. In the first case the hallucinations are simply calmed by the prison surroundings; in the second, the influence of solitude, contrition and the excitement of examination act so powerfully as to produce them even in diseases in which hallucinations are usually absent.

Both classes tend to improve when removed from the prison surroundings, but whether recovery takes place or not is dependent upon the character of basal disease.

ALLEN.

EXPERIMENTELLE UNTERSUCHUNGEN ÜBER DIE WIRKUNG DES DIPHTHERIEGIFTES AUF DAS NERVENSYSTEM (The Action of Diphtheria Toxin on the Nervous System). Bielschowsky and Nartowski (Neurol. Centralbl., July 1, 1900, p. 638).

These investigators describe experiments which they have recently carried out in Mendel's laboratory. The pathological changes have been located in three situations—the peripheral nerves, the spinal cord (parenchymatous and interstitial myelitis, with secondary changes in the nerves and muscles), and the muscles. The authors injected sterile diphtheria toxin into white mice, rabbits, and guinea-pigs. Large doses produced rapid death, with anatomical evidence both of general intoxication and of a special action on the vascular system. The animals which survived this stage developed, eight or ten days after the injection, more or less typical post-diphtherial palsy. The vessels were found quite full and with pathological changes in their walls leading to scattered foci of hemorrhage. There was no sign of meningitis or encephalitis, nor were the nerve cells of the brain or cord with a few isolated exceptions affected. Preparations by Marchi's method showed nothing noteworthy in the brain or cord, but extensive degeneration of the myelin sheaths of the peripheral nerves; this was confirmed by Weigert's procedure. The muscle fibers were the seat of fatty change. The conclusion is drawn that the essential lesion is parenchymatous degeneration of the peripheral nerves; the slight changes in the anterior horn cells are held to be secondary or of cachetic origin; while the vascular alterations play but a subordinate rôle in the pathogeny of post-diphtherial palsy.—*B. M. Journ.*

Book Reviews.

PROGRESSIVE MEDICINE. A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by HOBART AMORY HARE, M.D. Vol. iv, December, 1901. Diseases of Digestive Tract and Allied Organs: Liver, Pancreas and Peritoneum, Genito-urinary Diseases, Anesthetics, Fractures, Dislocations, Amputations, Surgery of the Extremities and Orthopedics. Diseases of the Kidneys, Physiology, Hygiene, Practical Therapeutic Referendum. Lea Brothers & Co., Philadelphia and New York.

This volume of Progressive Medicine contains an especially valuable résumé of a number of contributions to recent literature on the subject of anesthetics. The discussion of this important adjunct of surgery, at the 30th German Surgical Congress held in Berlin in May, 1901, furnishes abundant material. Mikulicz says that since the collection of Gurlt's statistics with regard to narcosis, matters have changed very much and local anesthesia must always be considered as a possible solution of difficulties connected with general anesthesia. Besides the subject of general anesthesia, the subsidiary questions of the various methods of local anesthesia and of spinal anesthesia receive full discussion.

The chapter on genito-urinary diseases contains some extremely interesting material. The old question of the possibility and of the severity of non-specific urethritis is illustrated by recent studies made in connection with microscopic investigations. The question of treatment in gonorrhea is very thoroughly considered and it is announced that while protargol remains the favorite, nargol, a newer preparation, has decided advantages, which are securing recognition. Nargol may be injected in the acute stage, combined with berberine—five grains of nargol and one grain of berberine to the ounce of water, being the beginning dosage.

Dr. Thornton's practical therapeutic referendum at the end of this volume contains some very thoroughly useful prescriptions, some of them containing valuable drugs not well enough known in this country.

JELLIFFE.

ARBEITEN AUS DEM NEUROLOGISCHEN INSTITUTE AN DER WIENER UNIVERSITÄT. Herausgegeben von Prof. Dr. Heinrich Obersteiner. Heft viii. Franz Deuticke, Leipzig und Wien, 1902.

Neurologists are very familiar with these "Arbeiten" from Prof. Obersteiner's laboratory in Vienna, and the importance which these publications have acquired is shown by a comparison of this latest and extensive volume with the much smaller first number. One is impressed in reading this latest volume by the attention that has been paid to anatomical and pathological subjects irrespective of their bearing on clinical neurology. There seem to be fewer cases studied both clinically and pathologically than have been contained in former numbers of the "Arbeiten."

Only a few porencephalic brains have been examined microscopically, indeed, only three (Dejerine, Kreuser, Schupfer) according to Obersteiner, and his own case reported as the subject of the leading paper in volume viii of the "Arbeiten," makes four. The reason for this is easy to understand. The scarcity of microscopical investigations is owing partly to the desire to preserve valuable gross specimens, and partly to the great amount of time and labor necessary for careful microscopical study. Obersteiner's case was a most extraordinary example of porencephaly, the extensive openings involving almost symmetrically the middle portion of each cerebral hemisphere. In this case the right optic tract was entirely undeveloped, and yet the nerve fibers in each optic nerve were about equal in number, from which Obersteiner argues that the crossed fibers must about equal the uncrossed fibers in number; an opinion which does not seem to be generally held. In this case the cerebral acoustic tract from the right posterior colliculus of the corpora quadrigemina to the temporal lobe was absent. The case showed that a lesion of the visual fibers within the cerebral hemisphere could cause atrophy of the visual system even as far as the optic nerves; whereas in the acoustic system atrophy from a similar lesion did not extend beyond the corpora quadrigemina. Obersteiner believes that in his case hydrocephalus developed first, and by pressure on the walls of the dilated lateral ventricles and the middle cerebral arteries caused porencephaly.

Nose describes the structure of the normal human cerebral dura. His paper is a preliminary report. Collections of blood corpuscles within the dura, resembling hemorrhages, were found by him in all the cases he studied, they therefore could hardly have been pathological, and yet their significance is unknown.

The case of intradural endothelioma of the upper cervical region reported by Schlaggenhaufer is interesting on account of the intense compression of the medulla oblongata it caused without secondary ascending or descending degeneration.

The paper by Steindler is an anatomical study of the velum medullare posterius. This structure is constant in mammalia, and is probably a rudimentary portion of the cerebellum.

Marburg describes the pathology of the spinal ganglion. He has observed cell-bodies of these ganglia with two nuclei. This he regards as abnormal development in embryonal life, and not as pathological. The homogeneous contraction of the nucleus he thinks is distinctly pathological only when it occurs in pathological cells. The eccentric position of the nucleus is always pathological. Marburg discusses in this paper changes in the cell-body, neuronophagia, changes in the nerve fibers of the ganglion, hemorrhage, softening and cyst-formation in the ganglion.

Frankl-Hochwart has studied the brain of the mole. This animal is completely blind, and therefore it is useful in the study of the visual system. He concludes that the habenula, the subthalamic body and the posterior commissure are not part of the visual system. The external geniculate body is not altogether deficient in the mole, but is very insignificant, and from this Frankl-Hochwart concludes that the external geniculate body may have some minor function in addition to that of vision. There is no indication of nuclei of nerves to ocular muscles in the mole, and yet the posterior longitudinal bundle is well developed, so that the portion of this bundle which unites the nuclei of ocular nerves cannot be very large. The root of the seventh nerve is well developed in the mole, while the sixth nucleus is absent, and this is further proof of the correctness of the now generally

accepted teaching that the seventh nerve has no origin in the sixth nucleus.

The case reported by Spieler was one of lipoma of the corpora quadrigemina, arising from the pia. This seems to be the fourth case of lipoma of this region. References to the literature on this rare tumor of the central nervous system are given. When intracranial lipoma does occur it is more common in the aged than in the young.

Marburg has a paper on the granular layer in the olfactory bulb of the guinea pig.

Karplus reports two cases of aneurism of intracranial arteries; one, an aneurism of the posterior communicating artery, was found in a person who had had migraine. The migraine was supposed to have been inherited, and not to have been caused by the aneurism, but it is probable that the vasomotor disturbances occurring during the attacks of migraine contributed to the formation of the aneurism. Probably a tendency to vascular disease also was inherited.

The second case was one of aneurism of the internal carotid. The diagnosis was made during the life of the patient, and the common carotid artery was tied. The patient, a woman, sixty-nine years of age, felt suddenly severe pain in the left side of her head. Constant headache and roaring in the left ear developed. Three days later left-sided ptosis and diplopia were noticed. A rhythmical murmur in the head, synchronous with the pulse, especially distinct on the left side, could be heard by the examiner. Compression of the left carotid artery caused the murmur to disappear. As general symptoms were not observed at the beginning of the attack, rupture of the aneurism with diffuse hemorrhage seemed improbable. The rupture occurred into the cavernous sinus and yet no signs of obstructed circulation were found in the eyeball, and the eyeball did not pulsate. Karplus discusses the dangers of ligation of the common carotid, especially in reference to cerebral softening and thrombosis.

Imamura's paper is devoted to the anatomy of the choroid plexus of man.

Zappert describes a fissure sometimes found in the posterior part of the lateral column, and which may penetrate deeply into this column. It is present only in the cervical and upper thoracic regions, and probably is not a pathological condition.

A long paper by Obersteiner and Redlich is on the fasciculus subcallosus and the fasciculus fronto-occipitalis.

Berl has studied the relation of the visual tracts to the anterior colliculi of the corpora quadrigemina.

Schacherl has a paper on the anatomy of Clarke's columns, and gives numerous references to the literature on the subject.

A short paper by Obersteiner on the fissure in the lateral column already referred to, completes this important collection of papers. Complete agenesis of the pyramidal tracts alone is not sufficient, he thinks, for the formation of this fissure, but there must also be a tendency to fissure formation.

SPILLER.

SYPHILIS UND NERVENSYSTEM. Siebenzehn Vorlesungen von Dr. Max Nonne. Oberarzt am Allgemeinen Krankenhaus, Hamburg. Eppendorf. Mit 42 Abbildungen im Text. Verlag von S. Karger, Berlin, 1902.

In 1887 Rumpf published his well-known monograph on syphilis of the nervous system; in 1897 Oppenheim contributed a very thorough article on syphilis of the brain to Nothnagel's System, and now Nonne of Hamburg sees fit to issue a series of seventeen lectures

in which he discusses fully and lucidly the relations of syphilis to the nervous system. These lectures give not only an accurate and critical summary of all that is known on this subject up to the present day, but are so full of personal experiences and reveal such a thorough grasp of every phase of this subject that the book is a most valuable addition to neurological literature. Those who think that there should be an end to books and lectures on syphilis, and on nervous diseases due to syphilis, do not know how intricate the subject is, and how many points still call for elucidation. We recommend Nonne's lectures to medical men for most careful study. Some young neurologist would do well to furnish an English translation.

The reviewer will select a few points for especial mention so as to show the author's position on some questions that are of particular interest. In the second lecture Nonne discusses the three different kinds of lesions: syphilitic neoplasms, chronic hyperplastic inflammation and disease of the blood vessels. The blood vessels may suffer in a mechanical way from syphilitic growth in the meninges and in the nervous tissue itself; they may be affected by luetic processes near them; inflammation of the *vasa vasorum* may lead to disease of the vessel walls. The media and adventitia suffer first, the intima is affected secondarily, giving rise to Heubner's form of endarteritis; this form may also be associated with the development of isolated *gummata*. Syphilis predisposes to atheromatous degeneration of the arteries.

The importance of gummatous meningitis is insisted upon in several lectures, and the variability of the clinical symptoms is clearly shown to be dependent upon the progressive and retrogressive changes in the morbid products. The lectures on syphilitic basilar meningitis, and the somewhat optimistic views regarding the prognosis of brain syphilis deserve special notice. Nonne speaks of the frequency of syphilitic epilepsy and instances some cases in which both epilepsy and tabes were developed in the wake of a syphilitic infection. The author concedes the important bearing of syphilitic contagion upon the development of *dementia paralytica*, but allows that there are other occasional etiological factors. In speaking of spinal syphilis, the frequency of meningeal and root symptoms is properly accounted for; spinal arteritis is referred to, systemic degenerations are denied, but the "systems" may be affected in irregular fashion. Erb's special type of syphilitic spinal paralysis is shown to be a post-syphilitic combined systemic affection. Those who doubt (and there are some such) the existence and frequency of syphilitic pseudo-tabes will do well to read the section on this subject.

Explicit histories, illustrating every phase of the subject, and related with commendable brevity, add much to the value of this book.

B. S.

News and Notes.

DR. HENNEBERG, Assistant in the psychiatric clinic at Charité, Berlin, has been made Privat Docent.

DR. DÖLLKEN has been appointed Privat Docent in the Leipzig nerve clinic.

AT THE KIEWER UNIVERSITY (Russia), Dr. W. Scelezki has been appointed Privat Docent.

ARCHIVOS DE CRIMINOLOGIA MEDICINA LEGAL Y PSIQUIATRIA is the name of a new monthly journal devoted to the study of abnormal mental life. It is published in Buenos Aires under the editorial supervision of Dr. Félix Lima. The editors are to be congratulated on its very fine appearance. We wish for it many years of success.

DR. PEARCE BAILEY has been appointed a member of the Board of Managers of Craig Colony.

NEW AMUSEMENT HALLS for the Northern Hospital for the Insane at Oshkosh, Wisc., and for the State Hospital for the Insane at Yankton, S. D., have just been completed.

DR. J. S. NEWCOMB, formerly of Sprague, Wash., has been appointed assistant superintendent of the Eastern Washington Hospital for the Insane at Medical Lake.

DR. H. A. TOMLINSON, superintendent of the St. Peter, Minn., State Hospital for the Insane, has introduced an interesting experiment by the formation of a King's Daughters circle among the female patients. The members of this unique circle, which has only been in existence a few weeks, are now busy and happy making all sorts of fancy and useful articles to be sold for the benefit of their circle. The principal object aimed at in this innovation is the mental benefit to be derived from some light and interesting occupation.

AN ANNEX to the Alabama Bryce Hospital for the Insane, at Tuscaloosa, Ala., has been erected at Mount Vernon, Ala. It will accommodate six hundred patients, and is for negroes only. It will be occupied in April.

A BILL has been introduced in the Kentucky Legislature to establish an epileptic colony at the State Asylum for the Insane, at Lakeland. The bill provides for an appropriation of \$75,000.

For the past fifteen years the advertisement of the Chas. H. Phillips Chemical Company has occupied the upper half of the first page of advertising matter. Many of our readers have missed it since the first of the year. It is to be found on the lower half of page facing first page of Publishers' Announcements.

THE
Journal
OF
Nervous and Mental Disease.

Original Articles.

THE MUSCULAR FACTORS CONCERNED IN ANKLE-
CLONUS.¹

BY S. WEIR MITCHELL,
OF PHILADELPHIA.

In a case of trauma of the spinal cord, seen lately in consultation with Dr. Guy Hinsdale, I observed that the very remarkable ankle-clonus present was the work of the soleus muscle alone; the gastrocnemius was entirely passive.

I confess to having been surprised, as I had always taken for granted that the whole group was concerned. In fact, in Gowers' and in Dercum's works on nervous diseases the gastrocnemius is distinctly mentioned as the active agency in causing ankle-clonus. Usually no muscle is mentioned in the text-books. Oppenheim, the latest, is thus silent.

I at first supposed that Dr. Hinsdale's case was an exception to the rule, but on examining a number of cases of spastic conditions I was interested to observe that in all of them the soleus alone was active in clonus of the ankle. The proof is readily to be had in thin spastic patients.

To test the matter let the patient be at rest—supine—with the leg fully flexed on the thigh. Then, grasping the

¹Read before the Philadelphia Neurological Society, March 25, 1902.

belly of the relaxed gastrocnemius with one hand, with the other start the clonus. It will be observed that, as the foot is flexed by the hand, the gastrocnemius is felt to become tense, but that as extension occurs no motion is felt in the belly of that muscle. The active agent in the series of extensions which we thus observe can only be the soleus. In fact, if now during clonus we keep the leg flexed and press the fingers in under the gastrocnemius, and especially when on the inside of the leg the soleus can be felt behind the gastrocnemius masses, we shall feel the soleus harden each time the foot is extended.

This proof we obtain best in thin persons, but any one can obtain it on himself in a very simple way by calling forth what I may call normal clonus.

This phenomenon is not, I think, mentioned in the books, and yet is a familiar fact.

To get this clonus let any healthy man sit forward on the edge of a chair with the leg in at least 45° of flexion; let the weight of the leg rest on the toes. If needed to aid the production of clonus press down with the hand on the knee. It is easy then to start the movement. It may go on for minutes, an entirely unwilling action. While the foot is thus in motion, by grasping the two muscles in turn one can make sure that the soleus alone is actively concerned.

When from spinal disease the soleus reply to a sharp pull gives us the phenomenon of clonic contractions, we are seeing precisely the same reaction which under other mechanical conditions may be evoked in health.

The last proof of this identity is found in the fact that the time (7 to 8 per second), is much the same in normal clonus and in that of disease.

It is clear that the soleus alone is concerned in clonus. But why does not the gastrocnemius itself respond to quick flexion of the foot? The explanation seems to lie largely in the mechanical relations and attachments of the two muscles we are considering.

The gastrocnemius is inserted on the femur; the soleus on the tibia; both by a common tendon on the heel. If the leg

be put in extreme passive extension on the thigh the pull made thus on the common tendon is so great as to forbid either muscle's being sharply enough jerked in flexion to occasion muscular response. If now we flex the leg on the thigh, as the gastrocnemius is attached to the femur it will become too relaxed for this to occur. The soleus, however, left independent by reason of its tibial attachments, may then be jerked freely through sudden passive foot flexion and be free to respond, as it does. So long as the common tendon is very tense from the gastrocnemial pull the soleus cannot be jerked by foot flexion. In fact, notwithstanding their common insertion, the soleus and gastrocnemius have rather distinct purposes, as I found well stated in Duchenne's "Electro-Physiologie," p. 424, as follows:

"When the leg is flexed on the thigh the gastrocnemius is so shortened (he should say relaxed) by reason of its upper hold on the femur as to lose almost all power to extend the foot. The soleus, then, because of its attachment to the tibia, is still left competent to extend the foot."

In fact, except when the weight of the body has during walk or station to be lifted on to the toes, these two muscles are independent. But for all the slighter acts of extension the soleus alone is used.

There is possibly another and a singular fact involved in the absence of clonic response by the gastrocnemius. The reply to the sharp pull which causes the knee-jerk, ankle-jerk or clonus is not the same, or equal, in all muscles. Like the muscular response to a blow, it can be had easily in certain muscles and far less readily in others.

Extreme tension is unfavorable to these responses, so also is full relaxation. Hence one additional reason why the gastrocnemius cannot be made to respond in any position may be that it is simply less excitable than the soleus. This normal difference in irritability is true, for example, as to the relative effect of a blow on the extensors and on the flexors of the arm.

The matter I have discussed is, after all, of no great moment, but it is always interesting to find a new clinical fact and to assign symptoms to their correct cause.

TWO UNUSUAL FORMS OF CLONUS: TOE CLONUS AND
LATERAL ANKLE-CLONUS¹.

By JOHN K. MITCHELL, M.D.

A case of disseminated sclerosis under my charge at the Infirmary for Nervous Diseases presents two interesting forms of clonus which I cannot find described. The deep reflexes are all exaggerated, but very variable; no Babinski; no rectus-jerk; there is crossed knee-jerk, scanning speech, nystagmus, lateral head movements, some muscular wasting and general spastic rigidity. The case has been variously diagnosed as cerebral diplegia, Friedreich's ataxia and multiple sclerosis. The ankle-clonus is very small, but prolonged and rapid. From the tracings which Dr. Eshner has made the rate is easily calculated as 7.2 per second. In taking the ankle-clonus, which can be brought out by a mere touch, I found that to push the foot a little to one side instead of upward produced a rapid lateral clonic movement, entirely in one plane. Its extreme excursion is not more than three-quarters of an inch, the speed being 6.5 per second. Both these rates are about the same as those of the ordinary ankle-clonus.

The lateral motion could usually be produced by giving the great toe a slight sharp inward push—and releasing it. The muscles being all in an unnaturally tense state and over-irritable, this starts the contractions, just as pushing the foot upward smartly starts some of the posterior leg muscles into clonic activity. But in ordinary ankle-clonus the opposing force is supplied by the hand, and in this side-wise movement this element of necessary opposition is wanting; the muscles themselves must supply it. The excursion is so short and the muscles which might produce it so small and deep-set that it is difficult to be certain of the special muscles concerned. At first we thought we detected movements of the anterior tibial,

¹Read before the Philadelphia Neurological Society, March 25, 1902.

and in some later experiments this muscle appeared to contract, but not always. With the foot in the extreme flexion which was its usual position the tibialis anticus would share in the production of a lateral movement. The peronei are more certainly concerned, but whether all unite in it, or whether it is due to the peroneus longus alone, cannot be made out. Opportunity for further study of this may possibly be had, although the patient has left the hospital.

She presented another small point of interest. The toes, which are small and imperfectly developed, were always somewhat rigidly half-flexed, the ungual phalanges bent upon the pedal. In an effort to straighten them or to try whether they could be straightened, a toe-clonus was started. It was slow, not more than three to four times a second, and was exhausted by eight or ten contractions. If it was excited by carefully pushing up the ungual phalanges with a force too slight to alter the position of the foot, the clonic movement was limited to the toes; if the push were stronger so that the foot moved on the ankle, ankle-clonus appeared. The toe-motion was performed by the interossei, the flexor brevis and longus not coming into play.

Theoretically, any muscles may exhibit the phenomenon of clonus, which is only a rapidly renewed contraction of a muscle, induced by over-stretching it suddenly; but clonus at the ankle and at the wrist are the only forms in which the phenomenon has diagnostic value; the rectus and jaw clonus are too uncertain. But it is not altogether a pathologic sign, and a clonus can readily be started in any person, as Dr. Weir Mitchell has remarked, by putting a set of muscles into an unnatural tension and keeping them so. This over-tension is a necessary precedent. Muscles already in a greater state of tension than normal are, therefore, peculiarly liable to show it, and those groups where opposition is well balanced and where the sets of muscles concerned lie close enough together for both to be brought readily into action by one stretching motion are the best suited to exhibit it. The opposition at the ankle is, in diagnostic examination of the act, supplied by the hand of the investigator. In rectus-clonus this is not needed.

A CASE OF CHOLESTEATOMA OF THE BRAIN.*

By

CHARLES LEWIS ALLEN, M.D.,

PATHOLOGIST AND ASSISTANT PHYSICIAN, NEW JERSEY STATE HOSPITAL, AT TRENTON.

Cholesteatoma is certain to be classed among the rarer neoplasms of the brain, hence the following case, which is remarkable also for the size and position of the tumor, has been thought worth recording, although it was first encountered by the writer upon the post-mortem table, and clinical history is lacking.

J. J., a friendless man, said to be thirty-three years old, was brought to the hospital on May 30, 1901, with a statement that a short time before he had been struck in the head and had since been apparently insane. He did not speak, appeared to be entirely demented, and had from time to time epileptiform convulsions until his death in *status epilepticus* on June 27. No record of any focal symptoms is obtainable.

Upon post-mortem examination the skull was found to be quite thin, but showed nowhere any trace of injury. The dura was not adherent. The brain appeared to bulge somewhat in the left frontal region. Upon removing the dura, in an area about one centimeter in diameter in the second left frontal convolution, a mass grayish white in color and somewhat lustrous, was noticed to be protruding immediately beneath the pia-arachnoid. Upon the inner surface of the left hemisphere, a mass in appearance much like cooked cauliflower, and having somewhat of a luster protruded, had pushed the corpus callosum downward, and had indented the convolutions of the opposite hemisphere. This protruding portion was about 4 cm. in diameter.

Upon further examination the tumor was found to be an extremely friable mass, which fell apart with great readiness.

*Specimen shown at a meeting of the Philadelphia Neurological Society, November 26, 1901.

It occupied the greater part of the frontal lobe, measuring, sagittally 8.5 cm., frontally 5.5 cm. and horizontally 3.7 cm., and was provided with a capsule. It arose from the body of the lateral ventricle and had extended into the frontal lobe. The portion next to the inner wall of the ventricle was firmer, laminated in structure, glistening white in color, and had a pearly luster. Portions of the mass crushed under a cover glass in salt solution, and examined microscopically, showed it to be made up of large flat polygonal and oval cells, most of



Photograph of the inner aspect of the left cerebral hemisphere, a portion of its surface being turned back to show the extent of the tumor (a).

them without a nucleus, cholesterin crystals, and fat globules with a fibrous stroma. It was impossible to obtain sections from the central portion of the mass, as the alcohol used in both paraffin and cellodin imbedding processes dissolved out the cells and cholesterin. A freezing apparatus was not at my disposal. From the internal portion of the tumor near its origin and including the capsule, some rather imperfect sections were secured. These stained by hematoxylin and eosin, by borax carmine and by Van Gieson's method, show what appear to be cornified epithelial cells, which tinge faintly at their edges, and have no nucleus, with a fibrous stroma. The capsule is composed of fibrous tissue, shows round cell infiltration, and in places some blood vessels filled with erythrocytes.

Sections through the brain axis and cord show nothing characteristic. There were congestion and slight broncho-pneumonia at the bases of the lungs, some increase of connective tissue in the liver, and slight interstitial nephritis.

The tumor is to all appearances a cholesteatoma. This diagnosis suggests itself on account of the color, the pearly luster, the consistence of the growth, its situation and its histological character as shown by examination of both fresh and stained specimens. That it had any more than an accidental connection with the blow on the head seems unlikely.

Cholesteatoma, first observed by Cruveilhier, and given its name by Johannes Muller, has formed the subject of a number of papers. Notable among these are those of Virchow, Beneke, Böstrom, and a quite recent one by J. J. Thomas. The balance of opinion seems to be in favor of the epithelial origin of these tumors, and the case here reported bears out this idea, as in it the tumor has apparently grown from the ependyma of the lateral ventricle.

The accompanying cut (from a photograph) represents the inner aspect of the left hemisphere, a portion of its surface being turned back to show the extent of the tumor mass.

A CASE OF PRIMARY DEGENERATION OF THE PYRAMIDAL TRACTS.*

BY WILLIAM G. SPILLER, M.D.,

ASSISTANT CLINICAL PROFESSOR OF NERVOUS DISEASES AND ASSISTANT PROFESSOR OF NEUROPATHOLOGY IN THE UNIVERSITY OF PENNSYLVANIA.

FROM THE WILLIAM PEPPER LABORATORY OF CLINICAL MEDICINE,
PHŒBE A. HEARST FOUNDATION.

Spastic spinal paralysis, lateral sclerosis, described separately by Charcot and Erb, has not an uniform pathological basis. Primary degeneration of the pyramidal tracts alone, *i.e.*, a degeneration confined to these tracts, and not resulting from a focal lesion, may occur, but certainly is very rare. The most recent paper on this subject with which I am familiar, is by Ida Democh², and she is able to refer only to the cases of Morgan and Dreschfeld³, and Dejerine and Sottas⁴. She reports a case that is complicated. She speaks of Morgan and Dreschfeld's case as being the least complicated in the literature, and yet some of the cell-bodies of the anterior horns of the spinal cord were diseased in this case. The examination of the tissues was made more than twenty years ago when the method of Nissl was not in vogue, and it is highly probable that had this method have been employed the nerve-cell bodies would have appeared more diseased than they did. The case seems to have been one of amyotrophic lateral sclerosis.

In Dejerine and Sottas' case the columns of Goll were not intact but the nerve cell-bodies of the anterior horns appeared to be normal, although the method of Nissl was not employed.

Ida Democh's case was complicated with neuritis from chronic alcoholic intoxication. The columns of Goll were degenerated in the cervical and upper thoracic regions. The

*Read before the Philadelphia Neurological Society, March 25, 1902.

nerve cell-bodies in the anterior horns of the spinal cord were not diminished in number, but apparently the Nissl method was not employed, so that we must remain in doubt whether these cell-bodies were perfectly normal or not. This omission is unfortunate, because in addition to the lateral sclerosis alcoholic neuritis probably existed, and there was therefore a double cause for cellular alteration in the spinal cord.

One of the most satisfactory cases yet reported is the case given in abstract recently by Strümpell⁵. This patient was 61 years old when first seen by Strümpell, and he was under his observation for almost fifteen years. The case was one of uncomplicated spastic spinal paralysis. The first signs of the disease began in 1866. The rigidity of the lower limbs developed gradually and became intense, and the tendon reflexes were much exaggerated. No fibrillary tremor and no trace of atrophy could be detected. The vesical and rectal functions were not affected. Sensation was normal until near death when some unimportant alteration of sensation was detected. The pyramidal tracts were degenerated, more in the lower thoracic and lumbar regions, and the degeneration did not extend above the pyramids. The columns of Goll were slightly degenerated in the cervical region. The nerve cell-bodies of the anterior horns were perfectly normal. It is presumable that they were examined by the method of Nissl, although the method of examination is not recorded in this abstract. The direct cerebellar tracts may have been slightly degenerated. Strümpell thinks that there can be no doubt that the spastic spinal paralysis from primary degeneration of, and confined to, the pyramidal tracts exists. The upper limbs are not affected in one form of this paralysis, and the disease may be hereditary. Another form is seen in more advanced life, and has a more rapid course, and all the limbs become spastic; finally, there may be slight atrophy of the muscles, so that this form cannot be sharply separated from amyotrophic lateral sclerosis. Two cases of the second type have been studied anatomically by Strümpell.

A third form occurs in childhood and may be hereditary. The pathology of this form has not been determined, except

in so far as shown by Bischoff's⁶ two cases in brothers, which are not altogether satisfactory. Bischoff found degeneration of the pyramidal tracts as high as the motor decussation, of the columns of Goll, of the direct cerebellar tracts and of the cell-bodies of the anterior horns of the cord and of the motor cortex. These cases cannot be regarded as uncomplicated either from a clinical or pathological viewpoint.

A few cases have been reported in which the primary degeneration of the pyramidal tracts was associated with degeneration of the direct cerebellar tracts, without alteration of the nerve cell-bodies.

My case reported in this paper, has resemblance to Strümpell's⁷, published in 1894, in which degeneration of the cell-bodies of the anterior horns existed, although muscular atrophy was not detected during the life of the patient.

A. G., a woman fifty years of age, was admitted to the Philadelphia Hospital, Feb. 26, 1901, complaining of loss of power in the lower limbs, and difficulty of speech. She was at first under the care of Dr. F. Savary Pearce, but later came into my service. The clinical notes, obtained at the time of her admission, were made by Dr. Pearce and the resident physician, Dr. Geisler.

Family history: Her father, mother and one brother were dead from unknown causes.

Personal history: She was the mother of three children, and had had one miscarriage since the birth of her last child. Three years before admission, while coming home from work, she became dizzy, but managed to reach her home without falling. She had not been feeling well for some time. A physician was called and by the time he reached the patient her left upper limb was powerless and she had lost the power of speech. She did not lose consciousness. In a day speech returned, but she has never been able to speak distinctly since the attack. She was able to move her left upper limb within two or three days, and she returned to her work after about three weeks, having recovered except that her speech was still indistinct.

About a year before admission, weakness of the lower limbs was noticed, and this weakness gradually increased in intensity so that she walked very little. Her memory had deteriorated.

On admission she was able to walk with difficulty, and her

gait was not distinctly spastic, and her steps were short. She swayed when standing erect, probably from weakness. Her speech was indistinct and bulbar in character.

She was a well-developed muscular woman. Her face was smooth and free from wrinkles below the forehead, but the forehead was wrinkled on both sides. When her mouth was opened it was drawn toward the right side. The naso-labial fold on the left side was not so distinct as on the right. The tongue was protruded straight, but the mouth was not widely opened. Both eyes could be closed. The irides reacted slowly to light and in accommodation. There was apparently no paralysis of the pterygoid, masseter and temporal muscles. There was no disturbance of deglutition.

The chest was well-developed and no atrophy was visible.

The left upper limb was moved freely but was weaker than the right, and the grip of the right hand was stronger than that of the left. There was no atrophy of the hands.

The lower limbs were moved freely, but were weak, and were not atrophied.

The reflexes were as follows:

	RIGHT	LEFT
Biceps-jerk	Much increased.	Increased.
Triceps-jerk	Much increased.	Increased.
Flexors at wrist	Much increased.	Increased.
Extensors	Much increased.	Increased.
Von Bechterew's	Absent.	Absent.
Epigastric	Absent.	Absent.
Knee-jerk	Much increased.	Increased.
Quadriceps-jerk	Much increased.	Increased.
Achilles-jerk	Present.	Present.
Plantar reflex	Increased	Increased.
Babinski's	Extension of great toe.	Slight extension of great toe.
Ankle-clonus	Absent.	Absent.
Patellar clonus	Absent.	Absent.

There were no disturbances of sensation, and stereognostic perception was normal.

She had been constipated and had noticed an increasing difficulty in retaining the urine for five months, but had not had absolute incontinence.

She had had dull headache over the whole of the head for one year, and occasionally had had pain in the left side of the face and in the back, but she had not had pains in the limbs.

On March 3, 1901, Dr. Charles A. Oliver examined her

eyes and reported: "Left pupil is the larger. The irides are extremely sluggish to light, particularly the left one; quite prompt to accommodation and convergent efforts. Paresis of left external rectus muscle. Eyegrounds are healthy."

An urinary examination made March 1, 1901, gave the following results: "Lemon color, sp. gr. 1011, reaction acid, sediment white; microscopical examination: pus and epithelial cells; chemical analysis: albumin, small amount; no sugar."

Another examination made July 8, 1901, showed granular casts and epithelial cells, and a large amount of albumin.

On July 3, 1901, the following notes were made by me: The patient is in a stuporous condition, although she replies to questions and moves her limbs on command. She permits the flies to collect on her face, and even on the inner side of the lips or within the mouth, without attempting to brush them away. She can give her name, but is unable to give her age, or to say how long she has been in the hospital. Her speech is thick. She has incontinence of urine and feces. She is paretic in the lower limbs, though she can move all the muscles of these limbs. The lower limbs are not atrophied and are flaccid.

In testing sensation no dependence can be placed on her statements, but she recognizes the point of a pin and withdraws either lower limb when it is stuck with a pin.

The knee-jerk on the right side is diminished, and is less intense than that on the left, which is also impaired. The Achilles-jerk on the right side is present, but feeble; on the left side it cannot be distinctly obtained. The plantar reflex is exceedingly active on each side, and the Babinski reflex is pronounced on each side. [A few days later the Babinski reflex was absent on each side, and no movement of the toes was obtained by irritation of the sole of the foot. The loss of this reflex was probably a result of the increasing stupor.]

She moves the upper limbs freely, and these limbs are not distinctly paretic. There is no distinct atrophy of the upper limbs. When the upper limbs are stuck with a pin she shows signs of discomfort.

The pupils are unequal, the left being larger than the right. The movements of the eyeballs seem to be free in all directions. The irides contract feebly to light; there is very little contraction in convergence. She closes the eyelids firmly. Both upper lids droop so that the palpebral fissures are narrow.

The heart sounds are very loud, and the first sound at the apex beat is suggestive of a murmur, the murmur however

is not transmitted into the axilla. The second pulmonic sound is somewhat accentuated.

The patient became progressively weaker, pulmonary and cardiac disturbance and fever developed, and she died July 10, 1901.

The pathological diagnosis made by Dr. W. F. Hendrickson, July 11, 1901, was: "Acute lobar pneumonia, chronic interstitial nephritis, hypertrophy and dilatation of heart, general arteriosclerosis, localized chronic pericarditis, chronic endocarditis, parenchymatous degeneration of myocardium, edema and congestion of lungs, early acute splenic tumor, parenchymatous degeneration of liver, chronic gastritis."

The brain and spinal cord were examined by me. Microscopical sections were made from the left paracentral lobule, the right cerebral peduncle, pons and lower parts of the central nervous system.

A slight recent hemorrhage was found within the cortex of the left paracentral lobule. The cell-bodies of this lobule could not be well studied by the thionin stain. No meningitis was found over this lobule, but the blood vessels of the pia at this part were slightly thickened.

The foot of the right cerebral peduncle was not degenerated either when studied by the Weigert hematoxylin or the Marchi stain. The right oculomotor nucleus contained many nerve cell-bodies and nerve fibers. A group of thickened blood vessels, surrounded by round-cell infiltration and the remains of an old hemorrhage, was found within the right cerebral peduncle near the oculomotor nuclei. No meningitis was found at the foot of the peduncle, and the blood vessels of the pia at this part were not much thickened.

The motor tracts within the pons were very slightly degenerated. The nucleus of each sixth nerve seemed to be normal. Very slight degeneration by the Marchi stain was found in the right pyramid, and none was found by this stain in the left pyramid. The cell-bodies of the nucleus of each twelfth nerve were shown to be deeply pigmented by the Marchi stain. The cell-bodies of these nuclei were numerous, but possibly not so numerous as in normal sections, and so far as could be determined by imperfect thionin staining they were not much diseased. The intramedullary portions of the twelfth nerves were normal. No meningitis was found over the medulla oblongata, and the vessels of the pia were not notably thickened. The anterior pyramids were slightly degenerated as shown by the Weigert hematoxylin stain, and the left pyramid was a little more degenerated than the right.

The degeneration of the pyramidal tracts in the spinal

cord, as shown by the Marchi method, was very slight, but when the Weigert hematoxylin stain was employed the crossed pyramidal tracts in the lower cervical and lumbar regions were found distinctly but by no means completely degenerated, and the degeneration was therefore of long standing. It was equal on the two sides of the cord. The direct cerebellar tracts were normal. The posterior columns were apparently intact. The direct pyramidal tract on the left side in the cervical region was slightly degenerated. The cell-bodies of the anterior horns in the lower cervical region were not so numerous as in normal sections, and some of these cell-bodies were diseased; *i.e.*, some were shrunken and had lost their chromophilic elements. The anterior roots of the lower cervical region appeared to be normal; except that some of the axones may have been slightly swollen.

In the lumbar region the cell-bodies of the anterior horns were not so numerous as in normal sections, and some of these cell-bodies were diseased in the same way as those of the cervical region. The anterior roots seemed to be normal.

Summary.—A woman fifty years of age developed suddenly weakness in her left upper limb with loss of speech. The power of speech was regained after a day or two, but never again was normal. The weakness almost entirely disappeared from the left upper limb after about three weeks. Two years after this attack she noticed that she was weak in her lower limbs, and the weakness gradually increased so that walking became difficult. The reflexes in all the extremities were exaggerated, and the Babinski reflex was obtained. The gait was not decidedly spastic. The right upper limb was not distinctly paretic, but the left was a little weak. No objective sensory disturbances were found, and no pains were felt in the limbs. Muscular atrophy was not observed, although the palsy of the lower limbs had existed more than a year. The reaction of the irides was sluggish. The left side of the face was slightly paretic, but the right side also probably was not normal.

Degeneration of the pyramidal tracts was found extending as high as the pons, but not above this. This degeneration was less intense in the anterior pyramids than in the spinal cord, and was equal on the two sides of the cord. The other tracts in the cord were normal. No meningitis was present.

Some of the small vessels of the cerebral pia were thickened, which in a person fifty years of age was not remarkable. The cell-bodies of the anterior horns of the spinal cord were in part diseased, and the nuclei of the hypoglossal nerves were probably not absolutely normal.

The attack of paralysis of the left upper limb probably with implication of the face, and with speech disturbances which developed two years before the other symptoms, cannot be satisfactorily explained by the findings. Amyotrophic lateral sclerosis does not usually begin in an apoplectiform manner. The degeneration of the pyramidal tracts extended equally high on the two sides, so that it is not probable that a focal lesion in the cerebrum was the cause of the degeneration in either tract; and no focal lesion could be found. A small hemorrhage in the brain may have occurred and caused the paralysis, but if so it did not lead to secondary degeneration. It seems not at all impossible that the sudden weakness of the left upper limb and of the left side of the face was the first sign of the amyotrophic lateral sclerosis, and that the weakness in the lower limbs developed so gradually that it caused little annoyance to the patient until a year or two later.

A case of amyotrophic lateral sclerosis with necropsy reported by Schlesinger⁸ has a resemblance to my case. A man, seventy-two years old, received a severe mental shock and his speech became at once affected. Soon after this a temporary right-sided hemiparesis developed. The mouth was opened with difficulty and deglutition was affected. To the symptoms of bulbar palsy were added progressive spastic paresis, without distinct atrophy of the extremities, and with exaggeration of the tendon reflexes. An acute commencement or rapid progression of bulbar palsy, according to Schlesinger, should always suggest the possibility of amyotrophic lateral sclerosis.

The paralysis in my case beginning in the lower limbs and not implicating the upper limbs, except the persisting slight paresis in the left upper limb, dating from the apoplectic attack, is unusual in amyotrophic lateral sclerosis, but has been

described as one of the signs of the spastic paralysis of Erb and Charcot from primary degeneration of the pyramidal tracts. The gait was not very spastic but it was weak and the tendon reflexes were exaggerated.

The absence of distinct muscular atrophy was one of the most interesting features of this case. The disease had existed more than a year, and therefore time for atrophy to develop had been given, and yet even in the lower limbs distinct atrophy was not observed. This is especially noteworthy, inasmuch as some of the cell-bodies of the anterior horns of the spinal cord were diseased. Had death been delayed atrophy might have been observed. It seems probable that the cellular changes developed later than the degeneration of the pyramidal tracts.

In the weakness of the lower limbs, the exaggerated reflexes without muscular atrophy, the gradual development of the paralysis—gradual because at the time of admission to the hospital the patient was still able to walk—the case presented the clinical picture of primary lateral sclerosis, and yet the microscopical examination showed that the cell-bodies of the anterior horns were implicated.

The slow reaction of the irides is not common in amyotrophic lateral sclerosis, but Schlesinger⁸ has observed the Argyll-Robertson phenomenon in this disease. The slow reaction in my case may have been caused by anteriosclerosis.

Amyotrophic lateral sclerosis is usually regarded as a rare disease, and yet within the last three or four years I have studied the pathological material from five cases of this affection, but only two of these cases have been reported. I have seen quite a large number of clinical cases within this period, so that I am inclined to think that amyotrophic lateral sclerosis is not so rare as many physicians believe. In association with Dr. Dercum⁹, and later in quite a long paper by myself¹⁰, I have discussed the symptomatology and pathology of this disease, and it is hardly worth while to repeat what has been said. In only one of the five cases was I able to trace degeneration above the pons, and in that case the degeneration of

the motor cortex was so intense that I believed that by the method of Marchi I might be able to define the extent of the cortical motor area, inasmuch as amyotrophic lateral sclerosis is essentially a disease of the motor system; an attempt which had never been made. This I was able to do, and I obtained a motor area corresponding quite closely to that described by von Monakow and others. The ascending frontal convolution was more degenerated than the ascending parietal, and this finding is especially interesting in connection with the recent results obtained by Schaffer¹¹ in his study of brains from cases of paretic dementia, and by Sherrington and Grünbaum¹² in their experiments on the brains of monkeys. These studies seem to show that the motor functions are represented in the ascending frontal convolution much more than in the ascending parietal convolution.

²Ida Democh, *Archiv. f. Psychiatrie*, Vol. 33, No. 1, p. 188.

³Morgan and Dreschfeld, *British Med. Journal*, Jan. 29, 1881.

⁴Dejerine and Sottas, *Arch. de physiol. norm. et path.*, 1896, p. 630.

⁵Strümpell, *Neurologisches Centralblatt*, July 1, 1901, No. 13, p. 628.

⁶Bischoff, *Wiener klin. Woch.*, No. 51, Dec. 19, 1901, p. 1281.

⁷Strümpell, *Deutsche Zeitschrift f. Nervenheilkunde*, Vol. v, p. 225.

⁸Schlesinger, *Arbeiten aus dem Neurologischen Institute an der Wiener Universität*, Vol. vii, 1900.

⁹Dercum and Spiller, *JOURNAL OF NERVOUS AND MENTAL DISEASE*, Feb., 1899.

¹⁰Spiller, "Contributions from the William Pepper Laboratory of Clinical Medicine," 1900, and author's abstract in *JOURNAL OF NERVOUS AND MENTAL DISEASE*, March, 1900, p. 165.

¹¹Schaffer, *Neurologisches Centralblatt*, No. 2, Jan. 16, 1902, p. 54.

¹²Sherrington and Grünbaum, *British Medical Journal*, Vol. 2, 1901, p. 1091.

REPORT AS TO THE CONDITION OF A MAN THROUGH
WHOSE RIGHT CEREBRUM A BULLET PASSED FROM
BEFORE BACKWARD ELEVEN YEARS AGO.

BY THEODORE DILLER, M.D.,
PITTSBURG.

The case is that of a man, now aged twenty-four years. Eleven years ago a bullet entered just above the middle of his right eyebrow and made its exit 0.5 cm. to the left of the occipital protuberance. (Cicatrices of both wounds plainly visible now.) Unconsciousness at once ensued, during which state the surgeons removed (patient's statement) four or five ounces of brain substance and a large amount of bone between the wounds of entrance and exit. At the end of three weeks consciousness returned, but the patient was unable to utter a single word and was completely hemiplegic (left side). Speech returned at the end of four or five weeks. Motion returned to the leg slowly during two or three years; no improvement has taken place since.

In the accompanying photograph the heavy lines indicate the area of brain which is covered only by soft tissues, the bone being absent; and at the same time the situations of the longitudinal and Rolandic fissures are also roughly indicated by ink-marks. The skull depression measures 13 cm. in its greatest length and 7 cm. in its greatest breadth. It extends from a point about 0.5 cm. above the middle of the superior orbital margin to a point 2 cm. behind the parietal eminence, being somewhat the shape of a skillet with the handle directed anteriorly. The upper margin of the depression is 3.5 cm. below the median line of the skull. In the skull depression the brain pulsations may be plainly seen.

The man exhibits no mental defects. He walks readily without a cane although the left leg is quite spastic, and he, of course, limps. While the left leg is weaker than the right, it retains a large degree of power. All power of motion in the left hand and forearm is absent; but limited movements of the left shoulder can be made. There are marked contractures in the fingers of the left hand. There is a partial paralysis of the left face, scarcely noticeable when the face is in repose.

All forms of sensation are greatly diminished everywhere over the left side, including face, tongue, conjunctival and nasal membrane, arm, trunk and leg. In the arm and hand all forms of sensation are entirely absent. Left hemianopsia is present. Of course the stereognostic sense is absent in the left hand.

The reflexes over the left side are much exaggerated, jaw-jerk, ankle-clonus, Babinski toe reflex and Bechterew's scapular reflex being present.

While the evidence afforded by this case is not exact, it still has a value in showing, in a rough way, the sensori-motor area of the cerebrum, especially as concerns the arm; and



at the same time the area concerned in the mechanism of the stereognostic sense. The middle Rolandic and parietal regions were most involved; and it has been seen that sensation and motion are absent in the arm. The superior and inferior Rolandic and parietal regions escaped largely; and we find a large degree of motion in the face and leg with a diminution of sensation only.

The hemianopsia may be due to destruction of the cuneus itself or to the fibers associating it with the primary optic centers.

Aside from other considerations, the case is remarkable as showing the reparative processes of nature and the extent of injury which the brain may tolerate.

REPORT OF A CASE OF FRACTURE OF THE BASE OF THE
SKULL FOLLOWED BY MENINGITIS AND ORGANIC
HEMIPLEGIA, ASSOCIATED WITH COMA AND CAT-
ALEPSY LASTING EIGHTEEN MONTHS.

BY ARTHUR CONKLIN BRUSH, M.D.,
NEUROLOGIST TO THE KINGS COUNTY, BROOKLYN EYE AND EAR, AND
WILLIAMSBURG HOSPITALS.

This patient was nineteen years of age, born in Scotland and resided there for eighteen years. He is an only child, his mother is living and in good health, and his father died during his infancy of typhoid fever. As far as can be ascertained there is no neurotic taint in his ancestry. Previous to Oct. 26, 1896, he had always enjoyed good health, and was a strong and vigorous young man of good mental ability and exemplary habits. On that date he was assaulted by three men, thrown violently backward to the pavement, and kicked about the body and limbs. During the next three days he remained in a weak condition, crying and trembling, and gradually growing more dazed and stupid, while during the same period blood escaped from the mouth; and at the end of that period he passed into the condition in which he was when I first saw him in consultation with Dr. W. L. Rickard. I found the patient in bed. He had the color and development of a healthy and vigorous young man. There was a swollen and tender spot over the occiput. The head was turned to the left, but free voluntary movements occurred at times. The eyeballs were directed forward and moved freely. The right forearm was flexed across the chest with the fingers of the right hand extended and the thumb flexed across the palm. The right lower limb was straight and the left flexed so that the foot rested on the opposite calf. Occasionally, and especially when he was disturbed, very violent movements would occur in the limbs of the left side; and at the same time he would shout, "They are strangling me, they are killing me, they are murdering me;" but he did not give any evidence of being conscious of his surroundings. At times he would place his left hand to his head and contract his brows. There was a constant fine tremor of the arms, most marked on the left side. No voluntary movements occurred on the right side, and the limbs and chest of that side were rendered immovable by tonic spasm of the muscles. All the

reflexes were absent. Sensation was somewhat increased over the right side of the body and in the right limbs.

The spine was rigid from tonic spasm of its muscles, and there was tenderness on pressure over the cervical and first two dorsal spines. The pupils were contracted, unequal and irresponsive to light. The pulse, respiration and temperature were normal, but the heart's action was extremely violent. The urine and feces were passed involuntarily.

Until December 14, 1896, he remained about the same, at times quiet, at other times muttering to himself or grinding his teeth, and he had the same violent outbreaks. The tremor disappeared from his arms, the pupils became dilated, the eyeballs directed upward and to the left. Several attacks of projectile vomiting occurred, and he developed an anesthesia of the left half of the body and face and hyperesthesia of the right. His pulse, temperature and respiration gradually rose above the normal. On December 14 a profuse watery discharge came from the left ear, he was restless and noisy, the pupils were contracted, he had a number of brief convulsions on the left side, and there was a soft ecchymotic swelling, extending in a crescentic manner from the left mastoid over the occiput. Three days later he had four general epileptic convulsions. He remained in this condition until December 26, 1896, except that he gradually lost flesh and color, and developed a small bedsore over the sacrum. The pulse became more rapid and his fever higher. He was now pronouncedly comatose, and repeated general convulsions occurred. On December 26 signs of fluid were discovered in his left chest. The right arm and leg were now found to be markedly cataleptic and remained in any position they were placed until the patient showed signs of exhaustion. Until August 20, 1897, he remained in about the same condition, except that his heart became much dilated; general cyanosis became evident; he had several attacks of cardiac syncope; fluid was removed from the left chest several times, and the spine became movable and cataleptic. After that date no more violent outbreaks occurred, and on March 17, 1898, the limbs of the left side were found to be in a state of tonic spasm so that they returned at once to their habitual position when disturbed.

On May 2, 1898, the date of a civil action for damages against the City of New York, his condition was as follows: Coma was profound, the head was turned to the left and moved with difficulty, the eyes were closed, the eyeballs were directed upward and to the left, the pupils were dilated and irresponsive to light, and no voluntary movements of the limbs on the right side occurred, and these limbs and the

spine were cataleptic. The left hand habitually rested on the forehead and the left foot on the right calf. The left limbs were rigid and returned at once to their former position when disturbed. Coarse tremors occurred at times on the left side. There was marked atrophy of the muscles of the left chest and of the front of the right thigh. There was hyperesthesia of the right half of the body and face and anesthesia on the left. The surface temperature was one degree less on the right side of the body than on the left. The temperature was 100. The pulse varied from 120 to 150 and the respirations from 40 to 60. The heart was very much dilated. The upper part of the dorsal spine was curved forward and to the left. The skin was cyanotic and cold. The urine and feces were passed involuntarily. During all this time the patient had been nourished by the tube.

During the latter part of May, 1898, it was noticed that vigorous irritation produced a momentary direction of the eyes forward, contraction of the brows, and grinding of the teeth. The cataleptic condition and spasm now slowly disappeared, leaving a flaccid paralysis of the right side of the body and neck with absence of reflexes. Sensation also became normal.

On August 12, 1898 a powerful faradic current was applied by means of the wire brush and after a few minutes in which there were violent movements of the left limbs, he began to utter inarticulate cries and then commenced to shout: "Let me go and take me out." He was now found to be completely blind in the left eye, and with only a faint perception of light in the right, and totally deaf in the left ear and nearly so in the right. He then said that he had been for hundreds of years in a place too horrible to describe, and where he had been constantly tormented by the employees of the Bureau of Incumbrances. He has never given any evidences of any knowledge of the facts which transpired during his sickness. Since that time he has developed an atrophic right hemiplegia, with flexor contracture and loss of deep reflexes. The spine still remained curved. He is totally blind from a double optic atrophy; and can only hear by means of the ear trumpet placed in the left ear. The heart is dilated and the left lung bound down by adhesions. At times he is excited and confused while at other times he is dazed and stupid.

NEW YORK NEUROLOGICAL SOCIETY.

January 7, 1902.

The President, Dr. Joseph Collins, in the chair.

Myasthenia Gravis Pseudoparalytica.—Dr. Frederick Peterson presented a woman, thirty-eight years of age, the mother of two children, who had been first seen by him in October, 1900. She had been sent to him by Dr. Knapp, of Mount Vernon. For several weeks a difficulty in speech had been noted and also some dysphagia, the condition resembling, to a certain degree, bulbar paralysis. There was no history of specific disease or of intemperance. She had no pain, not even headache. Examination showed some weakening of one side of the mouth, slight deviation of the tongue to the right, and a very peculiar manner of speech, a dysarthria that had no real resemblance to that of bulbar palsy, general paresis, multiple sclerosis or any of the common types of difficulty in speaking. It seemed almost as if it were assumed, or as if it were hysterical simulation. There was no atrophy of the lips or tongue, and no actual paralysis of any of the muscles, including those of the throat. The gait was an imitation of a spastic gait, but was without spasticity. She was anemic, very weak, and with a weak pulse and heart. The pupils reacted normally. The knee-jerks were rather subtypical. There was no weakness of the eyelids, such as the ptosis described in many cases. She was pregnant, and in March, 1901, gave birth to a normal child. She was seen again in May and in November, 1901. The condition of pseudo-spastic gait and pseudo-bulbar dysarthria remained unchanged at both of these examinations. There was quick exhaustion in mastication, speech, swallowing, walking, etc. This disease, the speaker said, was sometimes known as asthenic bulbar paralysis, asthenic paralysis, bulbar paralysis without anatomical lesion, or myasthenia gravis pseudo-paralytica, and had been described by Erb, Oppenheim, Hoppe and many others. The symptom-complex in typical cases consisted of dysarthria, dysphagia and masticatory weakness, with corresponding paresis of the labial, glossal, palatal and masticatory muscles. The paresis might affect the upper facial muscles and those of the extremities. There was no atrophy and no signs of degenerative reaction. The sensorium remained free. The disease fluctuated from time to time as regards the severity of the symptoms. The sphincters and reflexes were not appreciably affected. The course might be periodic, acute, subacute or chronic. The prognosis was unfavorable, though patients had recovered. Several autopsies had been made with negative findings.

Dr. B. Sachs said that he had seen only one other case. In the one just presented, the clinical picture was so distinct that there could hardly be any doubt about the diagnosis. Evidently the cases were very rare, for they were not of a nature to be readily overlooked.

Dr. Joseph Collins said that he was under the impression that the case under discussion would eventually become an atypical one of

glosso-labial pharyngeal palsy. There was nothing in the case which reminded him of the cases of asthenic bulbar paralysis that he had seen. He would not include under asthenic bulbar paralysis any patient who presented the symptom-complex of a spastic paretic condition. It was entirely opposed to present knowledge of the disease to find exaggerated knee-jerks and tendon-jerks, and for this reason he would rule out the present case from the category of true asthenic bulbar paralysis. Moreover, the woman seemed to be developing some atrophy of the lips. The first case of asthenic bulbar paralysis described in this country was the one that he had long had under observation. That woman found that while she could chew one or two mouthfuls, she could not continue to do this. The same was true of muscular acts in general; there would be sudden evidence of exhaustion. Having gone through two or three critical periods characterized principally by the phenomena of surgical shock, she had practically recovered completely, inasmuch as there were no active symptoms of exhaustion present. Her facial muscles, though presenting no evidence of atrophy, still did not respond energetically to conscious stimuli, and the gait was a somewhat shuffling one.

Dr. Peterson said that his first impression was that this was a case of true bulbar palsy, but in the year and a half which had elapsed since his first examination there had been no true atrophy of the face, and no true spastic condition. The knee-jerks were active, but not exaggerated, and there was certainly no ankle-clonus. It was very easy to demonstrate the presence of muscle exhaustion. It was, of course, possible that later the case might present the evidence of true bulbar palsy, but certainly it did not do so at present.

A Case of Morphea.—Dr. J. Fraenkel presented a young woman, thirty years of age, an artist by occupation. The family history was negative, and she had been well with the exception of a severe attack of malaria eight years ago. About five years ago blotches began to form along the course of the sciatic nerve, and were at first tender, but subsequently underwent atrophy. When first seen by the speaker the examination of the nervous system was practically negative, but there were areas of atrophy of the skin. She had improved considerably since first coming under his observation on January 29, 1901. His diagnosis was morphea or disseminated scleroderma.

Report of a Case of Spinal Cord Tumor Successfully Operated Upon.—Dr. Robert Abbe made this report. The patient was an athletic man, thirty-two years of age, who had been first seen in April, 1900. He had been well up to three years before, when after a fatiguing game of golf he was seized with pain between the shoulders. This pain disappeared within a few days. Subsequently he noticed that the fingers began to be numb and became flexed. Then the legs and arms became similarly affected. Dr. Dana prescribed large doses of iodide of potassium, thinking the case one of spinal cord tumor. Various consultants saw the case, but the patient became suddenly worse. When seen by Dr. Abbe, the fingers were tightly flexed into the palm. On April 30, 1900, Dr. Abbe operated upon the spine, removing the laminae of the fifth, sixth and seventh cervical, and the first, second and third dorsal vertebrae. A thin layer of a whitish substance was found bulging backward, and on cutting into it a dark tumor was revealed, which measured two inches in length and was attached to the anterior wall of the canal. On removing the tumor, the hemorrhage was not severe. Convalescence was uneventful. Some of the muscular and sensory conditions were improved. Dr. F. C. Wood, the pathologist of the hospital, reported that the tumor was a sarcoma of the spinal cord.

Dr. C. L. Dana's report of this case was also read. The symptoms began, this report stated, in 1896. They did not progress much until March, 1898. He had been first seen by Dr. Dana in October, 1898. There was exaggeration of the deep reflexes, ankle-clonus and wrist-clonus; there were occasional attacks of vertigo, and the man was particularly sensitive to cold. There was no distinct differentiation of cutaneous sensations, though the temperature sense was rather more disturbed than the other senses. Just prior to the operation by Dr. Abbe the following condition was noted: There was total paraplegia with the legs greatly contracted; the hand was in the position of ulnar paralysis; the reflexes were all exaggerated. The right arm showed anesthesia to all forms of sensation; the left arm showed no anesthesia. Apparently the disease began in the eighth cervical and first dorsal segments of the cord. While spinal tumor had been suspected from the first, Dr. Dana said that he had been inclined to believe that there was some meningeal complication. On the whole, the picture at this time was very much like that of hypertrophic pachymeningitis. The operation revealed no meningeal complication; only tumor of the cord and the consequences of pressure.

Dr. V. P. Gibney said that he had seen this patient on June 6, 1900, and had found complete paralysis of the lower extremities, associated with a high degree of spasm. The thighs were strongly flexed upon the abdomen, and the legs upon the thighs, so that the heels were pressed against the buttocks. On October 30, 1900, under gas and ether anesthesia, Dr. Gibney had divided fascia and muscles, about the hips, dividing the hamstrings and the Achilles tendon, and getting the limb into much better position. Plaster-of-Paris is bandages were applied from the toes to the free ribs. A second operation was done on November 15, 1900, and by this still further correction was obtained. On January 3, 1901, all plaster dressings were removed, and posterior splints were employed in connection with traction. The spasm of the limbs grew less. On February 5, Dr. M. Allen Starr saw the case and made a diagnosis of complete degeneration of the cord. When the man was examined last fall it was found that the spasm was fast disappearing, and that there were few or no contractures about the joints. There was no evidence of recurrence of the tumor, and the result under the circumstances seemed to be all that could be expected.

Dr. B. Sachs said that he had reported about two years ago a case of sarcoma pressing upon the cauda equina which had been successfully operated upon. The diagnosis had been made from the area of pain, and from the fact that pressure upon a definite region just to the right of the spinous process of the second lumbar vertebra caused exactly the same pain as that of which the patient complained. The diagnosis was confirmed at the operation, the tumor presenting in the incision. It was extradural and was completely enucleated. The spinal cord had not been invaded. If there were any reason to suspect spinal tumor the operation should be done early. In the case just referred to, if the operation had been postponed even for a short time the cord would have been invaded and paraplegia would have been the result. The inclination of the neurologists to make a diagnosis of pachymeningitis did not seem surprising, and was to be explained by the length of the tumor. Even if the case were one of pachymeningitis he did not think any harm could be done by an exploratory laminectomy.

Dr. Abbe, in answer to questions, said that the tumor in the case he reported was intradural, that it started in the medullary tissue

and extended into the spinal canal, not into the vertebral canal, and distended the spinal cord.

Dr. Joseph Collins said that the neurologists had heretofore relied too largely upon pain in making a diagnosis of spinal cord tumor, although probably the majority of such tumors were associated with pain. He now had under observation a patient in whom the symptom-complex was an ataxic paraplegia, and he was beginning to think that the case was really one of sarcoma. Seven or eight years ago he had seen in the Hospital for Nervous Diseases a case that had been diagnosed as pachymeningitis, but some months later he had made the autopsy, and had found a tumor which could have been very easily removed by operation.

Scleroderma and Sclerodactylitis, with Some Remarks on Its Therapeutics.—Dr. B. Sachs read a paper with this title. He said that most neurologists seem disposed to accept the theory that this disease was an angio-tropho-neurosis, though many were inclined to look upon it as originally a nervous disorder. It was certainly not a purely spinal affection. There was a typical fascies of scleroderma, enabling one to make the diagnosis at first glance; he referred to the peculiarly thin nose, the hollow cheeks and the retracted lip. All sorts of therapeutic measures had been adopted without much benefit. Among the remedies which had proved of decided benefit in certain cases was thyroid extract. The first case reported by Dr. Sachs was that of a woman, fifty-four years of age, who had been first seen in November, 1891. The symptoms of scleroderma had developed four years previously. Many dermatologists had seen her and prescribed for her without the slightest change in the scleroderma. Thyroid extract was prescribed, and it benefited her so greatly that she continued its use without permission. When seen again some time afterward she was greatly emaciated, but all of the symptoms of scleroderma had disappeared. She was directed to stop the thyroid extract at once, and after a time to resume it, taking two grains three times a day. The speaker said that he had seen the patient again recently, and had found her perfectly well, though it was necessary to keep up small doses of the extract or the symptoms of scleroderma would return. The second case was that of a young woman of twenty-four, who had also been benefited by this treatment. A radiograph of this patient's hands was exhibited to show the attenuation of the bones. Another case was interesting in that the scleroderma followed an injury, the piercing of the hand by falling upon a letter file. Eight months after this injury the skin of the hands became hard, discolored and tense, and the condition was aggravated by cold weather. An X-ray picture showed no changes in the bony structures. There was such slight benefit from the thyroid extract that it was discontinued, and the man's condition remains at present unchanged.

Dr. E. B. Bronson said that a distinction should be made between simple idiopathic atrophy of the skin and scleroderma. Circumscribed atrophies of the skin occurred in various places, and although they might present a hardness it was very different from the hardness of scleroderma, because there was a thinning and an atrophy which was not present in scleroderma. Scleroderma was very frequently followed by atrophy, but atrophy was not an essential part of the disease. In the so-called diffuse form there was no change in the appearance of the skin in a typical case, and the change was noted only by the sense of touch. The cases reported in the paper were of the diffuse variety, but this class of cases could be conveniently divided into a limited and a universal form. The more or less lim-

ited diffuse form came on rather suddenly after an exposure to cold or after an injury, and at first the functions of the part and the appearance were not changed, but the sense of touch would enable the physician to at once recognise the existence of scleroderma. The generalized diffuse form sometimes followed exposure, but it was more commonly due to some central trouble. It was only after some atrophic changes had taken place that there was visible loss of substance. At the stage of maturity the face of such a person was not shrunken, according to his experience—in other words, the contour was not altered, but expression was entirely wanting. The circumscribed form of scleroderma was totally different, and was called by the English by the rather absurd name of morphea. Instead of being ill-defined at the margin, it was sharply limited, and was usually associated with a change of color, as a rule being darker than the surrounding skin. It often presented a lilac border. In this form there was simply a scleroderma without atrophy. In most of these cases recovery was spontaneous. Some years ago he had observed a peculiar case in which the diffuse form had been converted into the circumscribed variety or morphea.

Dr. Joseph Fraenkel said that he had seen altogether nine cases of scleroderma, and had become impressed with the idea that this term included several different conditions. There were three types, the circumscribed, the generalized and the secondary forms resulting from arteriosclerosis, chronic rheumatism, and very many other causes. An example of the secondary form was a case in which the patient suffered from myocarditis and angina pectoris. There finally developed along the inner aspect of the left arm a line of induration of the skin, which ultimately became atrophied. The only variety which seemed to yield readily to the thyroid extract was the circumscribed form.

Dr. B. Sachs said that the name scleroderma was rather unfortunate, because it was evident from the radiographs presented that other tissues beside the skin were affected, only the muscular tissue seeming to be exempt. The cases described by Dr. Bronson had probably been observed in the early or middle stages of the disease. A point of value in the diagnosis was the absolute immobility of the skin, the latter appearing to be glued to the part underneath. In his cases he had used only the powdered thyroid gland, given in capsules, for, in previous years, he had found the extract entirely unreliable.

February 4, 1902.

The President, Dr. Joseph Collins, in the chair.

A Case of Monocular Exophthalmos.—Dr. J. Arthur Booth presented this case, and raised the question as to whether one were justified in making the diagnosis of Graves' disease. The patient was forty-seven years of age, and had never had any serious illness previously. She had been well up to last fall, when she noticed a blurring of the vision and a change in the appearance of the eye. There was no history of fright. The patient stated that three months ago the left eye was struck by the foot of an infant. Examination showed no enlargement of the thyroid; pulse 96; no decided tremor. Dr. David Webster found both fundi normal and the action of the eye muscles normal. There was retraction of the upper eyelid of the right eye with marked exophthalmos.

Dr. B. Sachs said that he had at present under treatment a married woman, about twenty-three years of age, who after pregnancy had developed unilateral exophthalmos. The case was identical with the present one except that the exophthalmos was on the other side. There was no goiter, and on coming under treatment the pulse was 132. Under treatment, consisting chiefly of rest in bed and the use of mild tonics, the pulse came down to 90, and was no longer intermittent, and the exophthalmos was slightly diminished. In addition, this patient presented the peculiar gastro-intestinal symptoms of Graves' disease, and, in the absence of any other serious disease he could only make the diagnosis of unilateral Graves' disease.

Dr. W. M. Leszynsky said that he had seen two similar cases. One occurred in a man who had exophthalmos, retraction of the upper eyelid and some tachycardia. In the course of six months the usual symptoms of Graves' disease developed, and the case ran the usual course. In the other case, there was unilateral exophthalmos and retraction of the upper eyelid with slight goiter, but without tachycardia. The case followed the usual course of Graves' disease. It did not seem to him unusual in the early stage of Graves' disease to find the exophthalmos only on one side.

Dr. J. Arthur Booth thought it was rather unusual for the eye to be alone affected in the beginning; more commonly there was some tachycardia as the first symptom.

A Case of Central Hematomyelia.—Dr. I. Abrahamson presented a man of forty years, a Russian tailor. The man had fallen and struck the back of his head on the floor some weeks previously. A week and a half later he noticed numbness of the little finger of one hand. Twenty-four hours after this the entire upper extremity was numb, and one day after this both lower extremities were numb and weak. On the fourth day of this trouble there was complete inability to move. The special senses were normal. There was extensive wasting of the muscles while the patient was in bed, although there was no fever. He recovered in a very short time. Examination showed the pupils equal and the ocular movements normal. There was a tremor of the facial musculature on one side; the tongue was drawn to the right; the reflexes of the upper extremity were exaggerated, especially the triceps. There was a marked flabbiness of the musculature and wasting, especially around the shoulders. The knee-jerks and Achilles-jerks were exaggerated. There was no spasticity. The volume of the left lower extremity was much greater than that of the right. There was no limitation of the visual field, and no Romberg symptom. On rising from the chair it was necessary for him to assist himself with his hands.

Dr. Joseph Collins said that he had had this case under his observation, and the only diagnosis seemed to him to be a central hematomyelia with the cleavage in an upward direction. The comparatively mild traumatism, the rapid onset of the symptoms, the rapidity of the recovery and the widespread involvement all seemed to him to point to this diagnosis. About two weeks ago the abnormal condition had been much more marked than now. The patient had been having great difficulty in rising from a chair, and would sit down very suddenly. There were no objective sensory disturbances.

A Case of Cerebral Endarteritis, Probably Syphilitic.—Dr. W. M. Leszynsky presented a Hungarian woman, twenty-two years of age. There was no history of rheumatism, trauma or syphilis. Several times recently there had been transient paresis of the left arm and leg, and there had been some regurgitation of food. Shortly before

coming under his observation there was severe headache and vertigo associated with fever, and followed by marked ptosis of the left eye. Examination in August showed partial ptosis of the left eye with vertical diplopia. Only the left superior rectus muscle was affected. The vision in both eyes was normal. The fifth nerve was normal objectively. Innervation of the facial muscles was feeble on each side, and there was slight facial paralysis on the right side. The patient was treated with mercury and iodide, together with galvanism and the use of strychnia internally. In ten weeks the ptosis and diplopia had disappeared. Ptosis was then observed on the right side, and in three days became complete. The levator was the only muscle affected. The iodide of potassium was resumed, and in four weeks this muscle had almost completely recovered. On January 12, or one month later, ptosis was again seen on the left side. There was slight vertigo, but no diplopia. At times the patient was obliged to make several efforts at swallowing before succeeding. She still complained of left-sided headache, and after talking for some time she found it almost impossible to speak, but the ability to do so would return after a few minutes' rest. She was now receiving 28 grains of iodide three times a day. There was no history or evidence of syphilitic infection. The case seemed to be a peculiar instance of cerebral endarteritis, probably syphilitic. The iodide had very little effect in controlling the pain.

Cerebro-spinal Syphilis.—Dr. Leszynsky also presented a man, thirty-three years of age, a driver by occupation. He had been first seen by the speaker in November, 1899, and up to three months before that had been well. He then experienced numbness in the left side of the face with slight twitching of the facial muscles. Two months later there was diminished vision in the right eye with occasional diplopia. Four months after the numbness began, the first three molar teeth in the right upper jaw became so loose that they were removed with the fingers. He was the father of six healthy children. According to the history, he had many years ago contracted a chancre, but no marked secondary symptoms had appeared. The pupils were found to be markedly contracted and rigid. There was no anesthesia of the conjunctiva, and there was good vision in each eye. Both fundi were normal. The innervation of the facial muscles was normal and there was no tremor. Mercurial ointment and iodide of potassium were used at first, and later strychnia. Three months later the man complained of vertigo and diplopia, and was found to have complete paralysis of accommodation. At the end of two months he was much improved and disappeared from observation. After an absence of sixteen months he returned in August, 1901, and stated that fifteen months previously he had fallen through a hatchway, but had been only severely shaken up. In July, 1901, he was thrown to the ground by a man jumping upon his head from a height. On examination in August, there was found to be complete paralysis of all branches of the third nerve; both pupils were rigid, and the patient was blind in the right eye. He had advanced atrophy of both optic nerves. He had been taking iodide and strychnia in injections. In this case of cerebro-spinal syphilis the optic atrophy was apparently of a primary degenerative type. Strychnine was administered in gradually increasing doses up to the toxic effect, but it had no beneficial action, and this had been the speaker's uniform experience with it in these cases. The case was of forensic interest because the man was trying to substantiate a claim that the blindness had resulted from the traumatism to the head.

Dr. B. Sachs said that the diagnosis could only lie between cerebro-spinal syphilis and tabes, pure and simple. In the former, if the optic nerves were involved there would be a distinct optic neuritis. The important question was as to whether there had been a primary optic degeneration. According to the history, the case was probably one of cerebro-spinal syphilis. The first case also seemed to be one of cerebral syphilis, but he doubted if it were an example of syphilitic cerebral endarteritis; it was more than probable that there was thickening in patches of the meninges about the nerves as they emerge from the base of the brain.

Dr. Leszynsky said that on account of the transient character of the symptoms it seemed to him that they were, in all probability, due to some interference with the circulation. The temporary attacks of aphasia and difficulty in swallowing, and the trouble with the third nerve pointed to some interference with the nutrition of the nuclei. If this interference were with the nerve trunk itself it would be unlikely for the localized meningitis to select certain fibers of the nerve and interfere with the nuclear distribution. In the second case, both Achilles reflexes were present; there were no sensory symptoms—in short, nothing to indicate the presence of tabes.

Multiple Sclerosis (?).—Dr. I. Abrahamson presented two cases suggesting multiple sclerosis, though presenting other symptoms. The patients were seventeen and sixteen years old respectively, a sister and brother. Both parents were well. The children were born without instruments, but early showed an unsteady gait, slowness of speech and nystagmus. Both children exhibited pronounced stigmata of degeneration. On examination, the gait was unsteady, the pupils were equal, the ocular movements slow and jerky, and nystagmus was present in all positions. At times, the Babinski reflex was obtainable. There were no sensory disturbances. The speech was slow and monotonous, and there were marked mental defects of the nature of a mild dementia. The fact that these two children, together with another, all belonged to the same family, was a point against the diagnosis of multiple sclerosis.

Dr. C. L. Dana said that if these cases were not to be called multiple sclerosis he did not think it would be possible to make that diagnosis from the clinical picture.

Dr. Joseph Fraenkel said that he had seen the boy when he was brought to the Montefiore Hospital, and had made the diagnosis of multiple sclerosis, but after having watched the case further and obtained a complete history he had been in doubt about the correctness of this diagnosis. At the time of admission the spastic symptoms were very much more marked than at present.

Dr. Sachs said that family forms of multiple sclerosis had been described, yet they did not entirely correspond with the typical picture of multiple sclerosis. They resembled somewhat the Marie type, but he would not make that diagnosis. A progressive disease of this sort occurring in a family with dementia had been reported by one of the northern European writers.

Dr. Collins said that he would hesitate long before diagnostically these cases as multiple sclerosis for the reason that this was opposed to our conception of multiple sclerosis as a pathological entity. It was now looked upon as a disease of early adult life, of the nature of a late infection or organic neurosis. In the cases just presented there was, in all probability, a teratological condition. To account for the symptoms there would have to be a large sclerotic area of the poles of the anterior hemispheres, while the posterior

and middle parts would have to be almost free, as the special senses were well developed.

Dr. Dana said that as dementia paralytica could be associated with multiple sclerosis in adult life, it was possible that the defective mental development might exist in childhood.

Multiple Sclerosis.—Dr. J. Ramsay Hunt reported the case of a widow, fifty-three years of age, who had been admitted to the Montefiore Hospital, in October, 1886. At this time her disease had lasted for several years. Speech was slow and stammering. She had a spastico-ataxic gait, the Romberg symptom, slight weakness of upper extremities with ataxia, and considerable motor weakness of the lower extremities. The knee-jerks and ankle-jerks were present and lively on both sides, and the pupils were equal and active on both sides. There were no sensory disturbances and no rectal or bladder symptoms. The ophthalmoscope showed an atrophy. In January, 1899, it was found that she could neither walk nor stand; speech was stammering and syllabic; there was marked intention tremor in the upper extremities; nystagmus was present in all directions except downward. The motor power was defective in the upper extremities, and there was resistance to passive movements, especially in the legs. The right knee-jerk and left Achilles-jerk were absent. The plantar reflex was present on the right and absent on the left. On post-mortem examination, the anterior border of the calvarium showed a nodular eburnation. The fissures were widened. The stained tissues showed an increase of glial cells, and leucocytes in the gray matter. The cells showed distinct atrophic changes and were somewhat sclerosed. The meninges were thickened and infiltrated with round cells. In the cord were found disseminated plaques of sclerosis. Nowhere in the cord were any distinct signs of inflammation. The specimens from this case were exhibited under the microscope.

Discussion on the Absolute and Relative Frequency of Multiple Sclerosis.—Dr. C. L. Dana said that among 3,000 private cases of which he had histories, there were only ten cases of multiple sclerosis. Out of about 600 cases at the outdoor clinic during the past year there were only two cases diagnosed as multiple sclerosis, and even these were questionable. In Bellevue Hospital itself 12,000 patients were received annually, and one of his assistants was constantly on the watch for cases of nervous disease, yet he had not found more than one or two new cases of multiple sclerosis each year. It was evident, then, that multiple sclerosis was very rare in private practice, and decidedly more rare than in the clinics of Europe. It was possible that we made mistakes in diagnosis in some cases of so-called acute or subacute transverse myelitis coming under observation as chronic transverse myelitis. Some of these cases would probably ultimately prove to be examples of multiple sclerosis, yet of those he had been able to follow for many years none had terminated in this way. Other cases of multiple sclerosis might have been recorded as ataxic paraplegia, though he did not make this diagnosis himself. He could call to mind four of these cases in which there was really a combined sclerosis due to some secondary anemia or toxemia. Then there were cases of sporadic forms of retrobulbar neuritis which perhaps develop later into multiple sclerosis. From his experience he was compelled to believe that multiple sclerosis must be more rare here than abroad, possibly owing to the better surroundings of the masses.

Dr. Graeme M. Hammond said that he had spent considerable time in examining the records of both private and dispensary practice. He had examined 3,000 private records, and 7,000 records from the clinic, extending over the past ten years. In the former there were 729, or about 25 per cent., with organic diseases. Of these cases, 15, or about 2 per cent., had multiple sclerosis. In the clinic cases there were 2,400 organic diseases, and of these 32 had multiple sclerosis, or 1.33 per cent. He could not agree that there was a greater percentage of multiple sclerosis cases in dispensary practice. Of the combined private and dispensary cases, 47 had multiple sclerosis, or 1.5 per cent.

Dr. Goodhart reported for Dr. M. Allen Starr, that he had examined 10,056 cases in the clinic, and had found 27 recorded as multiple sclerosis. In 6 of these the diagnosis was doubtful—in other words, there was one undoubted case in 475. Of the 4,809 males there was one case of undoubted multiple sclerosis in 437, while of the 4,898 females, there was one such case in 700. With regard to the age, the records showed that among the males there was only one occurring after the age of sixty, while among the females all developed the disease under thirty-one years of age, and the earliest case occurred at the age of sixteen months.

Dr. Sachs said that he had examined the records of 2,000 cases in private practice, and had found 13 undoubted cases of multiple sclerosis, and 2 questionable ones. There were 41 of tabes dorsalis, 69 of cerebro-spinal syphilis, 38 of general paresis, 14 of intracranial tumors, 15 of paralysis agitans, 37 of apoplexy and 15 of infantile cerebral palsy. He thought we had a faulty impression of the relative frequency of the disease in Europe. According to one of the latest European works, the author states that he had seen 5,500 private cases of nervous disease, and in this number had met with 38 cases of multiple sclerosis. This would give 1 in 144, whereas Dr. Sachs said his own experience gave 1 in 150. It was most important in considering such figures to know from what classes the material had been drawn. Many cases diagnosed in this country for the time being as chronic myelitis, were diagnosed in Europe as incipient cases of multiple sclerosis before the characteristic symptoms had developed. With regard to the differential diagnosis, the speaker said it was important to differentiate multiple sclerosis from multiple cerebro-spinal syphilis, and also from general paresis, particularly in the later stages. Multiple sclerosis usually began earlier than general paresis, and the latter was a much more progressive disorder, and the dementia was much more marked. In several cases of cerebral infantile palsy he had been in doubt as to whether there was multiple sclerosis present. There were some cases which had begun as multiple sclerosis and had gone over distinctly into paralysis agitans. He had seen two or three cases in which there was considerable doubt as to whether the correct diagnosis was neurasthenia or multiple sclerosis.

Dr. Leszynsky said that he had no statistics to present, but he would agree with the others that multiple sclerosis is comparatively rare in this country.

Dr. B. Onuf said that he had made the diagnosis of multiple sclerosis in a much larger proportion of cases than the others, for he had seen in hospital between 500 and 600 cases, and had made the positive diagnosis of multiple sclerosis in 8 cases.

Dr. Edward D. Fisher sent a communication saying that in his

clinic at the University, during six years, he had seen out of a total of 2,451 cases of nervous disease, 8 cases of multiple sclerosis.

Dr. Collins said that in 1901, 1,470 cases of nervous disease had been seen at his clinic, and this number furnished 5 cases of multiple sclerosis. In 1900, 1,368 cases were seen, of which 5 were multiple sclerosis. In 1899, there were 1,400 cases and 5 of multiple sclerosis; in 1898 there were 1,270 cases with 3 of multiple sclerosis. Thus, in the four years the clinic had been under his personal direction there had been approximately 6,000 cases of nervous disease, with 19 cases of multiple sclerosis. During this period there had been 37 cases of locomotor ataxia, 29 of paralysis agitans. From 1890 to 1897 there were 28 cases of multiple sclerosis in a total of about 4,000 cases of nervous disease. He had notes of 8 cases of multiple sclerosis seen in the City Hospital, and not included in the previous figures. This hospital devoted about 75 beds to nervous disease, and in this service he had met with about one case of multiple sclerosis a year. In his private practice he had made the diagnosis of multiple sclerosis four times only. According to his own experience, therefore, multiple sclerosis is a very rare organic disease of the nervous system. He had found paralysis agitans one and a half times more frequent, and tabes dorsalis about twice as frequent as multiple sclerosis.

Dr. J. Fraenkel said that the statistics of the Montefiore Hospital conformed very closely to those already presented. Out of 2,100 patients at this institution during the past ten years, about half of them being cases of nervous disease, there had been only 18 cases of multiple sclerosis. He had been very conservative in making the diagnosis of multiple sclerosis in these cases. Out of about 160 cases of nervous disease at present under treatment there, about 35 were cases of tabes and 9 cases of multiple sclerosis.

PHILADELPHIA NEUROLOGICAL SOCIETY.

December 23d, 1901.

The President, Dr. James Tyson, in the Chair.

The Supra-orbital Reflex.—Dr. D. J. McCarthy referred to the recent papers on this reflex, and showed that this phenomenon described by him was a true reflex. It consists in a fibrillary tremor of the lower lid when the skin of the supra-orbital region is irritated.

Dr. William G. Spiller thought that Dr. McCarthy had the better of the contention that this is a true reflex. It is similar to the closure of the eyelids produced by touching the conjunctiva or the cornea, as this also is a reflex in the distribution of the fifth and seventh nerves. When one of these reflexes is lost, the other also should be lost, and as a matter of fact this seems to be so.

It would be interesting to know what would be the effect on Chvostek's sign from removal of the Gasserian ganglion. Some persons in normal health have a very active Chvostek sign. While this phenomenon may be due to irritation of the seventh nerve, it is possible that it might be lost if the centripetal impulses through the sensory fifth nerve were prevented.

Referring to a case reported by Dr. Keen and himself, Dr. Spiller said that he thought it the most perfect removal of the Gasserian ganglion he had seen. In many cases the ganglion has been removed intact, but in none has the motor root been left on the ganglion as in this specimen removed by Dr. Keen.

He also called attention to the condition of the eye in the two cases exhibited by Dr. McCarthy. In the case where the Gasserian ganglion was removed six years ago, the eye was much injected, whereas in the other where the ganglion was not removed, but the sensory root was cut, this injection was not present.

"Static Electricity in the Diagnosis and Treatment of Hysteroidal Disorders."—A paper with this title was read by Dr. G. Betton Masssey.

The Treatment of Locomotor Ataxia.—This paper was read by Dr. J. K. Mitchell.

Dr. S. Weir Mitchell corroborated what had been said about the use of the bandage about the limb for the relief of pain. He called attention to a point on which much information could be obtained by organized movement. Many years ago he had collected some statistics on the subject of ataxic pains in connection with storms, and satisfied himself that the ataxic pain was due in a large number of instances to the coming on of storms more or less distant. He had unfortunately lost the portfolio in which this material was contained and since had not had the courage to again take up the subject. He believed that 96 per cent. of the neuralgias following trauma are due to storms. A collective investigation of the relation of ataxia to storms and of hemicrania to storms would result in a paper of great importance and material value.

Dr. Charles K. Mills stated that his experience with regard to rest and massage had been the same as that of the reader of the paper. He considered rest to be the most useful measure for the relief of symptoms of irritation in tabes, and also that massage was a

useful adjunct to rest. He had had no experience with the use of the bandage. For a number of years he made use of electricity, especially in the form of the galvanic current to the spine, apparently with benefit for the relief of the irritative symptoms of this disease. In discussing the treatment of the symptoms of a disease like this, it must be borne in mind that the pains come and go, and stay a varying time without apparent cause; and also as pointed out by Dr. S. Weir Mitchell, that they are greatly influenced by changes in the weather.

He believed that certain drugs have some value in the relief of the pains of tabes dorsalis. For many years he had used hydrobromate of hyoscine for this purpose, but not especially to relieve the pain at the time of the attack. The long-continued use of this drug, in combination with rest and possibly with massage, will often relieve the active symptoms, and do something toward holding the disease in abeyance and even of bringing about some improvement. Of course, we never obtain cures in cases of real tabes. He referred to a patient who had had locomotor ataxia for about twenty-five years. The speaker first saw him twenty years ago. This man is the manager of a large business and during all this time has occupied this position. He has not developed ataxia to any extent although he has the sensory symptoms in a severe form. He has apparently been helped by insistence on periods of rest and the use of hyoscine hydrobromate.

Dr. F. X. Dercum agreed as to the value of rest and massage in locomotor ataxia. He suggested that it might be worth while to make trial of massive doses of strychnia as are used in tic dou-loureaux with such excellent results. He had used strychnia in cases of tabetic pain with apparent benefit.

Dr. S. Weir Mitchell said that years ago he had used strychnia in very large doses without any very satisfactory results. With regard to rest, he was led to write his first paper on this subject by the observation of a case of ataxia where the patient met with a fracture of the thigh. While recovering from this, he broke the other thigh, and was kept in bed four months. As a result all of the pain disappeared. This patient also discovered that if he slept between blankets he had less pain than if he slept between sheets. Some years later, when the speaker was in Paris, Charcot said to him that he had tried the use of rest without any results. The reason for this was evident when the patients were examined. They were all miserable, broken-down French paupers in an advanced stage of the disease, and little could be hoped from any form of treatment.

Dr. Alfred Gordon said that Marie had recently published a paper reporting a number of cases in which excellent results had been obtained in the relief of the pains of locomotor ataxia by the use of salophen particularly where there was a rheumatic taint in the case. The speaker had used this remedy in a number of cases with excellent results.

Dr. G. Betton Massey said that with regard to the use of electricity in the symptomatic treatment of ataxia, he could corroborate the statement that the galvanic current was of less value than other forms. He had used static electricity, both spray and sparks for the relief of the pains in the legs. This had seemed to have some effect. He thought the use of the faradic current desirable, particularly if the pain were abdominal. There is no doubt that pain in the pelvic and abdominal viscera is greatly helped by long-continued applica-

tion of the faradic current, and for this purpose the fine wire, high-tension coil is best.

Dr. William G. Spiller referred to a case of tabes that he had seen some years ago. The patient had found that the pain was relieved by pressure with the fingers on the painful spots. Many now recognize that the tabetic pains may be made worse by changes in the weather.

With regard to the use of drugs for the relief of pain, he was indebted to Dr. Sinkler for the suggestion of the use of aluminium chloride. He had employed it with benefit in some cases.

Dr. Wharton Sinkler said that Gowers in his article on tabes speaks of the use of aluminium chloride for the treatment of the pains of ataxia, given in five to ten grain doses three times a day. The speaker had used it in half a dozen cases with marked relief in the majority. It seems to exert a distinct influence not only in tabes, but in other forms of spinal disease, for example in disseminated sclerosis. In two cases of the latter the pains were relieved.

Dr. John K. Mitchell said that he had not pretended to cover the whole subject of the treatment of tabes in his paper, but that he attached very little importance to the use of any drugs, with the exception of morphia in the very advanced stages, as compared with massage and rest.

The Sensory Segmental Area of the Umbilicus.—Dr. W. G. Spiller read a paper, showing that the umbilicus lies between the ninth and tenth thoracic segments.

Dr. D. J. McCarthy said that there had been much discussion as to whether or not the reflexes are lost after a complete section of the cord above the reflex arcs. The general fact is that in animals where there is no disease posterior to the point of section, the reflexes are retained after the animals have recovered from the acute effects of the operation. In a certain number of cases in the human being, the reflexes have been lost, but in these cases it is possible that changes may have occurred in the cord which would account for this.

Dr. Charles W. Burr said that some years ago he had under observation a case of fracture of the spine high up in the thoracic region. The day following the injury the knee-jerks were absent. He assumed that this was due to shock, but the man lived for many weeks, and the knee-jerks did not return. When the autopsy was made, it was found that the cord was injured not only at the seat of fracture, but also that it had been torn across at the lumbar swelling. In that case, he thought it fair to assume that the loss of the knee-jerks was due to the lesion in the lumbar swelling. In the experimental sections that he had seen, the final result was that the deeper reflexes were increased. In the few cases that he had observed in man where apparently there was total destruction of the cord high up, the knee-jerks were increased.

Dr. William G. Spiller said that much had been written in regard to the question of the loss of the knee-jerk from complete transverse lesions high up in the cord, but the matter was still undecided. Some have thought that this loss is the result of neuritis, and neuritis has been actually detected but not in all cases. It would be a mistake to suppose that in all cases where the knee-jerks are lost in complete transverse lesions high up in the cord, there is also a lesion lower down.

Remarks on Verbal Amnesia.—Dr. Alfred Gordon read a paper on this subject.

Dr. Charles K. Mills considered that this case was confirmatory of the view which he held—a view first advanced by Broadbent—that there was a separate region in the brain, contained within the zone of speech as he had delineated the zone of speech in his own work, and that lesion of this region will give rise to verbal amnesia of the type referred to by Dr. Gordon. He believed, therefore, that the zone of speech should be extended beyond the zone indicated in Dejerine's diagram, so as to include the midtemporal region of the cerebrum. He thought that one of his own cases, and one or two reported in Germany, went to prove that this naming or concept center is located in the midtemporal region. In his own case the evidence was not positive, on account of other complicating symptoms probably due to the extension of the lesion beyond this center. He saw many theoretical reasons, as well as reasons from reported cases, for believing in this. It seemed to him that the process through which the name is associated with the concept (which concept is derived ordinarily from various sources), should have a special representation. The great objection to this doctrine of a special region has been founded upon the numerous reported cases in which verbal amnesia has been present, and yet the lesion has been found in different localities. When, however, careful consideration is given to the questions which arise in connection with this subject, he thought that these objections fall to the ground. The case that would prove absolutely the existence of this center might be one like the one reported by Dr. Gordon. A case like this which on autopsy showed a midtemporal lesion, with intergrity of the visual, auditory and motor speech centers, would furnish the required proof.

Dr. D. J. McCarthy referred to a case which he had seen with Dr. Davisson, that of a young man eighteen years of age. He had previously enjoyed excellent health. For several months he had been using alcohol to excess. He was suddenly seized during an hysterical outbreak with inability to express himself either by writing or talking. This had lasted several days when Dr. McCarthy saw him. He was then completely aphasic, except for "yes" and "no," which he said properly, and the significance of which he fully appreciated. He could then answer questions by writing the answers, and these were all carefully given. He could read well and understand what was said to him. He was hemianesthetic, and had submammary and inguinal tenderness, with spots of exquisite tenderness along the spine. The aphasia suddenly disappeared several days later. The speaker considered it a case of hysterical motor aphasia.

Dr. Alfred Gordon said that there were cases reported where the symptom, verbal amnesia, was so striking that one could not help thinking of something special for that psychic function. The question of memory is a very interesting one, and in this connection he referred to a case reported a short time ago in which there was loss of topographical memory. The patient knew the location of certain prominent buildings in Paris, but he could not place them in relation to each other. At the autopsy in this case there was found softening in the lower temporal region. He suggested the importance of taking up the subject of memory more closely.

Gelatinous Exudates in the Cerebral Ventricles.—Dr. C. Van Epps and Dr. D. J. McCarthy showed two specimens of these exudates.

Periscope.

Beiträge zur psychiatrischen Klinik.

(1902. Vol. 1, No. 1, January.)

1. The Further Development of Scientific Psychiatry. R. SOMMER.
2. The Diagnosis and Surgical Treatment of Hydrocephalus Internus and Cerebellar Tumors. R. SOMMER.
3. The Influence of Alcohol on the Motor Functions of Man. A. ALLEN.

1. *Development of Scientific Psychiatry.*—The author (the editor of the *Beiträge*) makes a plea for the exact analytical study of single cases and single symptoms (tremor, convulsions, etc.) by the methods outlined by him in his "Lehrbuch der psychopathologischen Untersuchungsmethoden," and implies his allegiance to the methods of Wundt as represented in psychiatry by Kräpelin. He believes that for the solution of psychiatric problems the concerted action of different institutions is desirable so that different hospitals may work together by the same methods on the same problems.

2. *Hydrocephalus Internus and Cerebellar Tumors.*—Many cases of idiocy are not congenital in origin, but are the result of definite brain disease, either during embryonal development or during the first years of life. The rational procedure is, therefore, the treatment of this disease and not the symptom (idiocy). If this were done the author believes many cases could be greatly benefited. Hydrocephalus internus is also only a symptom, and the various surgical procedures of lumbar puncture, puncture of ventricle, are only for the purpose of removing the accumulation of fluid and do not get at the seat of the trouble. With these ideas in view and for the purpose of determining the true cause of the hydrocephalus the author takes up the analysis of a case. The case presented symptoms pointing to cerebellar tumor. An exploratory operation did not reveal the tumor, but considerable fluid was removed. The patient died the following day. Section disclosed a sarcoma of the cerebellum which by pressure on the vena Galeni produced the hydrocephalus. The author calls attention to the danger of shock and collapse from too sudden removal of pressure from the medulla, and to prevent this advises that the operation be done in two stages. (1) Opening of the posterior cranial fossa. (2) Removal of the tumor. The second operation should be done some days after the first, and after the brain has had time to adapt itself to the new mechanical conditions brought about by the opening in the skull. In cases where there is marked hydrocephalus from obstruction to the blood-flow in the vena Galeni these procedures should be preceded by lumbar puncture with a view to gradually reestablishing normal circulatory conditions.

3. *Alcohol and Motor Functions.*—This article concerns itself only with the involuntary motor phenomena produced by alcohol. The phenomena studied are tremor of the fingers—by means of the three dimensional tremor apparatus—and the patellar reflex, by means of the reflex multiplicator. (Both instruments are described in Som-

mer's "Lehrbuch der psychopathologischen Unterentzungsmethoden.") After an exhaustive study and analysis of the curves produced by tremor of the fingers as recorded by the kymograph in the three different directions—sagittal, transverse, vertical, he concludes in the main that as compared with similar curves taken before alcohol was ingested that they show the tremor produced by alcohol is finer; the coarsest oscillations are most numerous transversely; these oscillations became during the research gradually longer and more nearly alike; continuation of effects one-half hour after end of experiments. The patellar reflex was studied in the same case, and at the same time. An analysis of the curves produced shows in the main that alcohol produced a change in the height as well as the form of the curve. This change began after the first ingestion of alcohol. After the ingestion of 100.44 gms. alcohol a sudden removal of cerebral inhibition is shown. The height of the first stroke is liable to fluctuation; continuation of reflex irritability one-half hour after end of experiments. W. A. WHITE (Binghamton, N. Y.).

The Journal of Mental Science.

(1902, Vol. 48, January.)

1. Some Cases of Pellagrous Insanity. JOHN WARNOCK.
2. Note on the Prefrontal Lobes and the Localization of Mental Functions. P. W. MACDONALD.
3. Female Criminal Lunatics. A Sketch. JOHN BAKER.
4. Crime in General Paralysis. W. C. SULLIVAN.
5. Notes on Hallucinations. CONNOLLY NORMAN.
6. Clinical Notes and Cases. Unilateral Hallucinations of Hearing Chiefly Musical. A. ROBERTSON. Degeneration of Optic Thalamus. J. B. BLACHFORD. Lipoma of Brain, ADÈLE DE STEIGER. Epilepsy following Traumatic Lesion of Prefrontal Lobe, A. R. URQUHART and W. FORD ROBERTSON.

1. *Pellagrous Insanity.*—For the past five years 141 cases of pellagra have been admitted to the Cairo Asylum, Egypt. Most of these come from the country districts in marked distinction to the types of disease coming from the towns, namely, general paresis and hashish insanity. The usual symptoms observed are those of melancholia, which soon passes into dementia; later on there is great emaciation and anemia with paresis of the lower limbs, intermittent diarrhea, and a prolonged state of prostration, which precedes the fatal collapse. The great anemia is contributed to by the ever-present intestinal parasites. Most of the patients come late, some time after the skin lesions are manifest. The patellar reflexes were usually much increased in force, although in five of the forty-five patients they were absent. Paretic gait is marked. The mental condition on admission is one of melancholia. Hallucinations of taste and smell are more frequent than those of the other senses. Dementia progresses rapidly. The author believes this type characteristic; the melancholia being so much in contrast to the maniacal forms of insanity prevailing among the Arabs, that whenever an Arab fellah is melancholic the suspicion is raised that he may have pellagra and search is made for the signs of the disease. One type of pellagrous insanity is worthy of special attention. In lieu of melancholic ideas the patient develops expanded notions of himself. In many instances the differential diagnosis between it and general paresis is somewhat difficult. Several histories with illustrations are appended.

2. *Prefrontal Lobes and Localization of Mental Function.*—The note

describes the general brain morphology of a congenital imbecile of sixty years of age, with a fairly well-formed head, short stumpy limbs, who had from birth a primary spastic paraplegia. He could not read or write, but could mutter words and had a general understanding of his surroundings. The brain showed absence of the superior longitudinal fissure in the region of the frontal and the anterior part of the parietal regions, the lobes being continuous. There is also a marked lack of development of the frontal lobes. The author, in discussing the recently-mooted question as to the functions of the occipital lobes and intellectual power, refers to the autopsy records of the idiots and imbeciles who died in the Dorchester Asylum from 1883-1901. Of the total of forty, in twenty-five the brain showed no marked deficiencies, but much irregularity in convolutions; twelve showed marked irregularity with arrested development in the frontal lobes; in two the occipital lobes were small and defective, and in one instance both prefrontal and occipital lobes showed defective development and irregularity. The general evidence, he believes, favors the supposition that the higher intellectual faculties have their chief localization in the prefrontal lobes.

3. *Female Criminal Lunatics*.—The author distinguishes two classes: the one consisting of those persons who have been found guilty of certain crimes or misdemeanors, but who have been acquitted on the plea that they were insane at the time such acts were committed; and a second class consisting of convicts and felons who, during their sentence of imprisonment, display symptoms of mental derangement and are transferred to Broadmoor. These are the lunatic criminals in contradistinction to the former class, the criminal lunatics. In the early days of the asylum these two classes were represented by equal numbers, but now the lunatic criminals form a small percentage of the whole. Although few in number, about one-third, they are very much in evidence. Fifty-five per cent. of these women were under thirty years; forty-five per cent. had reached middle life, and five per cent. were old women. In nearly one-fourth of the younger criminals congenital defects were noted; in eighteen per cent. a history of previous attack was ascertained; a limited number suffered from epilepsy and general paresis. The type of insanity most common is delusional mania. Infanticides constitute the bulk of the population at Broadmoor. The records there show that 253 women killed their children; 3 attempts were made in 53 other instances; thus giving a total of 286. It is not vice that kills these children in the puerperally insane woman, but a morbid and mistaken solicitude; they plead that the child will be happier in heaven.

The gestation insanities are here divided into the insanities of pregnancy, showing 5 per cent. of infanticides; the insanity of the puerperium, showing thirty-five per cent., and the insanity of lactation, showing sixty per cent. The insanity of pregnancy is more often accompanied by intense mental depression which sometimes deepens into true melancholia. In all but two of the cases here recorded the insanity was developed and the infanticide committed during the later months of pregnancy. The age limits of the text-books are not confirmed by the author's observations. There seems to be no law of age. The author regards those cases as puerperal insanity which develop within two months of parturition, although this is purely arbitrary as the mental causes are at work insidiously for weeks and months and finally culminate in a tragedy during the lactational period. Of twenty instances of infanticide of the newly born,

sixteen occurred in unmarried mothers. After months of concealment and denial, the cry of the child awakens a temporary frenzy and the deed is committed. Of the cases that occur in the puerperal period, within two months of parturition, sixty-four are recorded. Most of these showed distinct melancholia.

Infanticide is far more frequent after the first two months after parturition, during the so-called insanity of lactation, which insanity is probably due to the exhausting nature of this process. Depression is followed by an obsession, then a delusion, and the thought of suicide follows. She cannot leave her child behind, it must be sacrificed first; the dreadful thought is banished again and again until it dominates the woman and the deed is done. These tragedies are frequently preventable and the woman's gradually-increasing mental aberration is sufficiently distinct to sound the note of warning to the friend. Religious ideas, oftener than any others, color the obsessions. Of this class there were 115 and were mostly in older women. Multiparal were in the majority. The author gives further an interesting series of comparisons of brain weights tending to show that those in homicidal female lunatics were below the normal standard of sane women, and that the brain weights of lunatic criminals, the thieves and fire-raisers, were still more deficient in this respect.

4. *Crime in General Paralysis*.—W. C. Sullivan, Deputy Medical Officer in the Pentonville prison, continues his inquiries into the causes of crime by a study of the outrages committed by those developing or having developed, general paresis. Crime in the general paralytic is held to be distinctly different from the conduct of the alcoholic or senile dement. Crimes of acquisitiveness are the most common; assaults, next; sexual offenses, third. Crimes of acquisitiveness are extremely common. Petty larceny seems the most frequent, but frauds, embezzlement, and others are not uncommon. The circumstances and the execution of the offense often show a characteristic silliness. Such crimes are more prone to be performed by optimistic paralytics and not by those with the melancholic form of the disease. Paralytics are extremely amenable to criminal suggestion, a point of great medico-legal importance. Suicide is not a common form of crime among paralytics, but if found it seems to be an early symptom, a last act of reason as it were, the patients perhaps recognizing their cerebral incapacity and fearing for the future. In the later stages, suicidal attempts are rare, and practically occur only in the melancholic types of the disease. Homicide is also rare, and seems to follow much the same lines as suicide. Opposition to the expansive moods of the paralytic seems the inciting cause. Suggestion is here an important feature. The author believes that the large majority of grave acts of violence depend on a primary homicidal impulse and are related to more or less persistent states of emotional depression. Sexual crimes are especially common in the early stages of the optimistic attitudes and are associated with the marked genital irritation. The author then gives a careful and acute analysis of the underlying psychological processes which determine the different kinds of criminal acts. These cannot be abstracted to advantage.

5. *Notes on Hallucinations*.—Dr. Conolly Norman gives a detailed history of one case of marked hallucinatory insanity and presents a series of minute observations concerning the various sense organs.

JELLIFFE.

Neurologisches Centralblatt.

(1902. No. 4.)

1. Exhaustion of the Knee-jerk, and the Diagnostic Significance of this Symptom in Nervous Diseases. V. BECHTEREW.
2. The Trigeminal-facial (supraorbital) Reflex and the Westphal-Pilz Reflex. H. LUKÁCZ.
3. Further Contributions to the Babinski Reflex. H. HORNBERGER.
4. Further Study of Asthenic Paralysis with an Autopsy Report. S. GOLDFLAM.

1. *Exhaustion of Knee-jerk.*—Attention is called in this paper to a peculiarity of action of the knee-jerk in multiple neuritis, *i.e.*, a slowing of the reaction, which gradually disappears as the neuritis disappears.

He also calls attention to the exhaustion of the knee-jerk in such diseases as (initial) tabes, myelitis, etc. The knee-jerk reacts to the first tap of the hammer, but rapidly disappears with each successive tap. If this exhaustion increases, it signifies an increasing lesion of the reflex arc, or the reverse if it decreases.

2. *Trigeminal-facial and Westphal-Pilz Reflex.*—Lukácz gives a careful study of the supra-orbital reflex, described by the reviewer, and confirms his results in the study of the nature of this reflex. He says that he "can confirm the observation of McCarthy that the contraction of the orbicularis is absent after resection of the trigeminal nerve," and the absence also of this reflex in affections of the facial nerve. An associated reflex in the pupil corresponding to the Westphal-Pilz reaction is produced in eliciting the above supra-orbital reflex, and is coincident with it. At first there is, after the tap on the forehead, a momentary, slight narrowing of the pupil followed by dilatation. He is, therefore, of the opinion that the Westphal-Pilz phenomenon and the orbicularis phenomenon are true reflexes, and not associated or transmitted movements.

3. *The Babinski Reflex* was present in two cases of cerebral lesions within five minutes after the "insult." From a study of these cases and other cases reported in the literature, he arrives at the conclusion that "the isolated dorsal flexion of the great toe is a reflex which depends for its presence on an intact fiber tract, a deep motor tract from the thalamus to the spinal cord. If, therefore, the dorsal flexion of the great toe be present, and then disappear, it may be assumed that this tract is interfered with by a lesion of the thalamus or lower. If the Babinski reflex be present on both sides after a cerebral hemorrhage, it points to a rupture into ventricles.

D. J. McCARTHY (Philadelphia).

Revue Neurologique.

(1902. Vol. 10, No. 2, January 30.)

1. Adiposa Dolorosa accompanied by Vasomotor Troubles and Sclerodermitis. ODDO and CHASSY.
2. Treatment of Basedow's Disease by Intrathyroidal Injections of Iodoform Ether. J. ABADIE and CH. COLLON.
3. The Influence of Alcohol upon the Efficacy of Thyroid Extracts. LAD. HASKOVEC.

1. *Adiposa Dolorosa.*—The case is that of a woman of thirty-four years, unmarried, a woman of position and education, who had met with reverses and was obliged to teach. At this time she began to grow stout, though without painful symptoms. In March, 1901, the

patient felt fatigued and lost appetite. After a trip to Nice and return to a cold climate she had pain in her knee-joints and elbows, and they were also swollen without redness. Walking was difficult. A few days later there was redness on the front of the legs corresponding to the pretibial and submalleolar nodes. The articular pain diminished with rest, but the painful nodes increased in number, always in front of the tibia of both sides. The case was pronounced phlebitis, and the patient entered a hospital. At that time her hair was gray in spite of her youth, her thin hands, feet and face made a strong contrast with the rest of her body, which was very fat, especially about the thighs and upper arms; near the joint of the limb the flesh was very soft, elsewhere firm. The distribution of the fat was perfectly symmetrical. Sudden pains were felt in these masses of tissue, exaggerated by standing, by walking, or by pressure; pain was also worse where there were constrictions in the flesh. The trunk showed great size of the anterior abdominal wall, lumbar region, thorax and back. The nodes near the tibias were now very painful, red and finely varicosed, and were not part of the surrounding adipose; these shortly increased in number. In the region of most dense adipose the skin modifications were notable—smooth, white, thickened and adherent with the cellular tissue. This scleroderma, very pronounced in the lower leg, grew less toward the thigh, but predominated where the fat had accumulated, though hardly appreciable on the trunk. The patient felt weak and could scarcely move. There was normal sensibility, except for a coldness in the feet. Reflexes were normal and there was no muscular atrophy, though muscular force had diminished. The patient was very depressed in spite of a formerly cheerful temperament; she cried frequently and seemed slightly unbalanced mentally. She grew slowly worse in all respects, locomotion being very difficult, both on account of adipose, muscular feebleness and the violent pain in the tissues and nodes. Urine had been very scanty and the following analysis was given: color, greenish yellow; density, 1033; reaction, decidedly acid; urea, per litre, 16.52, with phosphates 4.49 and chlorides 5.85; albumin, glucose and urobilin absent, but biliary pigments present. Blood analysis: hemoglobin, 10 for 100; red corpuscles, 547,500, and white 4511 per cubic m.m.; the leucocyte formula was: lymphocytes, 20.33, mononuclear with contained lymphocytes 40.66, polynuclear 58.66, and eosinophile 1.33 for 100. The patient was subjected to thyroid medication, 50 eg. in two doses, morning and evening, and was kept quietly in bed during the first weeks of August. Medication was continued until the 14th, when there was still much pain and the urine was scarce, 50 cc. in twenty-four hours. The medication was slightly diminished, and on September 6 there was diminution in the patient's size, though the nodes were numerous still. For the violent pain in the limbs salicylate of methyl gave some relief. The patient returned home in late October, returning frequently for treatment. On November 12, the symptoms had all much decreased; pain was almost gone, she was brighter mentally, walked better and could even go up and down stairs with comparative ease. For the diagnosis of this case rheumatism was first suggested on account of difficulties with the joints and the rheumatic nodes. But the distribution of the fat, the phenomena of pain and the fact that the patient was a woman, prematurely old and mentally affected, determined the case as one of adiposa dolorosa. With this question settled, attention is given to the peculiarities of the case, the sclerodermatitis and vasomotor troubles.

1. The sclerodermic aspect was most pronounced on the lower parts of leg and arm, with sharp bands above ankles and wrists; it was superimposed upon the adipose and ceased with it. This sclerodermitis gave a very peculiar appearance to the skin, making it pearly and white of a glossy surface, at the same time that the pores, deprived of hairs and much distended, tended to make the surface look like that of an orange save for color. The cause for this was evidently trophic, as was that of the adipose; it emphasized the trophoneurotic nature of the case.

2. The vasomotor troubles were many and interesting. The nodes, characterized by slight redness with fine varicosity were present; second the cyanosis of the feet, emphasized when the patient stood; third, the dermographism, the cause of which was also connected with the adipose.

Finally, the excellent results of two trials of medication with thyroidin are pointed out; this lessened the intensity of pain and caused some of the tissue to be absorbed. Such success with this remedy is rare, but it is an interesting and signal case when such good fortune results.

2. *Basedow's Disease and Iodoform Ether.*—This new mode of treatment was made known by Prof. Pitres, who, among twelve patients, cured six and improved the rest. The solution is: ether 20 gm., iodoform 4 gm. Each injection is 1 cc. of this by the Pravas syringe after the usual antiseptic precautions. In order to inject, it is necessary to define by palpation the thyroidian tumor, and to recognize the superficial veins and nerves of the neck; the latter are moved to one side with the left hand, and the needle, ordinarily held like a pen, is placed lightly on the point of greatest hypertrophy of the goiter. By obtaining a movement of deglutition from the patient, one is assured of the penetration of the needle in the thyroid body and rapidly injects. The injections are sometimes preceded, accompanied or followed by certain phenomena which the author emphasizes. Emotional apprehension, which causes trembling and palpitations, augmentation of ocular tension and conjunctival hyperemia are often preliminary symptoms. At the moment of injection there is a sort of bubbling comparable to the penetration of air into the veins: this is rare and probably due to the sudden evaporation of ether. There are also some changes relative to the distention of the glandulo-vascular parenchyma and to the probable compression of some of the nerves; they consist in a sensation of increase in the size of the throat, smarting, pinching and shooting pains from the cervical region to the jaw, ear, and the nape of the neck; often a dry cough is present. After the injection a more or less marked tension is felt in the thyroid region; often a bad taste in the mouth, resulting from the passage of iodide in the saliva. To control the lesions produced in the interior of the goiter by these injections, connective tissue must be produced. There is first a diffuse sclerosis with capsular and vascular predominance, making ridges and irregular thyroid lobules in the interior of which there is dislocation and atrophy of the vesicles, disappearance of the colloidal substance and an extreme proliferation of the epithelial elements. Later the connective tissue becomes fibrous.

The experiments in this treatment extended over twenty-four cases of Basedow's disease, some severe, some light, all treated in this way exclusively. The patients were all women, from fifteen to fifty years old, at all stages of the malady. The injections of 1 cc. were made at intervals of seven to eight days at the point of great-

est hypertrophy. In each case improvement followed, sometimes after only one or two injections, but when complete cure was affected, after months or even years, with the treatment less frequent. Of the various symptoms, goiter is the first to diminish, the injections having as their object the sclerosis of the gland; then headaches, insomnia, irritability, amenorrhea, polyuria, difficult deglutition, ocular pain, all disappear; later appetite returns and digestion is good, strength increases and the usual occupations are resumed. Even the cardinal symptoms improve; trembling often disappears completely; the subjective symptoms which accompany tachycardia, particularly precordial pain, vanish; the thoracic attacks and the beats of the carotids are no longer perceptible. Likewise the parasthetic or painful phenomena, which accompany exophthalmia and the motor troubles and inflammatory lesions which complicate it disappear rapidly and permanently. Accidents or complications or inflammatory phenomena have never been known to follow injections of iodoform ether. Once only a state of semi-syncope was brought about, and once a slight unilateral paralysis of the glottis, which disappeared in a few days.

3. *Alcohol and Thyroid Extracts.*—In studying the action of thyroid fluids upon the central nervous system, the author found that an intravenous injection produces, in the dog, an acceleration of pulse and a diminution of blood pressure. The author has already shown that the first phenomenon is caused primarily by the accelerator nerve of the heart, and the second phenomenon by the direct enfeeblement of the heart itself. He found that thyroid liquid preserved by means of alcohol lost its efficacy, while acting as a fresh liquid when preserved in carbonic acid; and on closer study noted that it was the alcohol itself which caused this inefficiency. Thyroid liquid, if mixed at all with alcohol, acts differently from the fresh, and the action depends upon the quantity of alcohol; that containing only a few drops being scarcely changed; mixed in equal proportions, the liquid produces diminution in blood pressure more pronounced than that of the pure liquid, and a slow pulse. The combination of thyroid liquid and alcohol, in the proportion of twenty to ten, produces slight slowing of pulse and less pronounced diminution of blood pressure. With less alcohol there results slighter slowing of pulse and almost no change in blood pressure. With fifty parts of thyroid liquid to twelve of alcohol, action of the extract is not destroyed, though acceleration of pulse and diminution of blood pressure are less than after injections of fresh liquid. Injection of liquid of a mixture in the proportion of twelve to fifty produces very considerable pulse and pronounced diminution of blood pressure. To account for all these phenomena, study was begun on the innervation of the heart. When the diminution of blood pressure is concerned, it depends directly on the enfeeblement of the heart itself. The slowing of the pulse is caused by the excitation of nerve centers as much as by that of the periphery, and in part also by the direct action of the alcohol on the heart. The weak doses of alcohol directly influence heart action in such a way that, reinforcing it, they slightly augment blood pressure. One might consider thyroid liquid and weak doses of alcohol as antagonistic, but in consideration of the results of the experiments in different proportions, and the various results on separate animals, the variation is from the quantitative point of view only. To show that alcohol does not affect the essential nature of the thyroid extract, the following experience is adduced by the author. Two mixtures were prepared, one with

twelve parts of the liquid to fifty of alcohol, the other with fifty parts of liquid to twelve of alcohol. The alcohol was allowed to evaporate from both, and the residue was injected with a little distilled water into the animal. The result from both was as that of fresh thyroid liquid. Thus alcohol does not essentially alter the thyroid fluid and leaves it with its powers of action upon heart and blood pressure; but when preserved or mixed with alcohol, it acts in a manner different from that of the fresh liquid, as the action of alcohol in the mixture paralyzes the action of the thyroid principle.

JELLIFFE.

Allgemeine Zeitschrift für Psychiatrie und psychischgerichtliche Medicin.

(1902. Vol. 58, January, No. 6.)

1. Some Internal Symptoms of Somatic Degeneration in Paralytics and Normal Individuals; also a Contribution to the Anatomical and Anthropological Variations of the Visceral Organs in Man. NÄCKE.
2. A Statistical Study of the Etiology of Progressive Paralysis. HOPPE.
3. Height and Body-weight in Idiotic Children. SKLAREK.
4. A Contribution to the Differential Diagnosis of Hysteria and Katatonie. KAISER.
5. Circular Insanity with Choreic Movements Occurring in a Child. VAN BREVO.
6. On Conrad Ferdinand Meyer. HESS.

1. *Some Internal Symptoms of Somatic Degeneration.*—Näcke made autopsies on 104 general paralytics and 108 normal individuals to determine the presence of visceral stigmata of degeneration, such as double apices of the heart; anomalies in the lobular formation of the lungs; lobulation and incisures of the liver; horse-shoe kidneys, etc. Each paralytic showed on an average four visceral stigmata, while an average of two or three was found in normal individuals. He therefore concludes that general paralysis occurs mostly in those individuals of imperfect organisms, an opinion which indicates a greater hereditary basis in the etiology of general paresis than is generally held, and also possibly indicates a more fruitful source of determining the degree of individual degeneracy than that usually followed in examining external bodily signs solely.

2. *Etiology of Progressive Paralysis.*—Hoppe found in a statistical study of the etiology of 501 general paralytics that syphilis was the "only cause" in 5.2 per cent., syphilis plus other causes in 20.2 per cent., alcoholism alone in 3.8 per cent., combined with other causes in 19.8 per cent.; heredity in 9.2 per cent., combined with other causes in 32.3 per cent.; sexual excesses in 0.4 per cent., combined with other causes in 7.8 per cent.; emotional causes in 5.4 per cent., combined with other causes in 18.8 per cent.; over-exertion in 2.6 per cent., combined with other causes 9.1 per cent. However, in such studies the possible faulty etiological history must be borne in mind.

3. *Height and Body Weight in Idiotic Children.*—In the study of idiots in the Insane Asylum at Dalldorf, Sklarek found the physique of the teachable idiots proportionately poorly developed as compared to that of normal children, and those teachable idiots who showed the greatest capacity approached nearest to the normal in physical growth.

4. *Differential Diagnosis of Hysteria and Katatonia*.—Following a long etiological digest upon hysteria and katatonia, Kaiser calls special attention to the occurrence of katatonia developing from infantile eclamptics; such cases closely resemble those suffering from so-called hysterical states of apathy. From a theoretical standpoint he believes these cases are psychogenic disorders combined with phenomena resembling katatonia.

5. *Circular Insanity with Choreic Movements*.—In a short etiological study of a case of choreic movements in a child suffering from circular insanity, Van Brevo concludes that katatonia cannot be excluded, and the choreiform movements present in the case might be thus explained.

6. *Conrad Ferdinand Meyer*.—The article is a psychological study of the late poet, C. F. Meyer, and concludes that the mental breakdown from which the poet suffered at 62 years of age, lasting more than a year, was a form of involutional melancholia occurring in an individual possessed, however, of a very peculiar constitutional temperament.

L. P. CLARK (New York).

Rivista di Patologia Nervosa e Mentale.

(1902. Vol. 7, fasc. 2, February.)

1. Clinical Contribution to the Knowledge of Gustatory Innervation. G. FASOLA.
2. Traumatic Astasia-Abasia in an Epileptic Child. U. GABBRI.
3. Dystrophic and Myxedematous Infantilism from Heredito-Pellagra. C. AGOSTINI.

1. *Gustatory Innervation*.—That the lingual is the nerve of gustatory as well as general and tactile sensation for the anterior two-thirds of the tongue, and that gustatory and general sensibility of the posterior third are presided over by the glosso-pharyngeal, is hardly to be questioned; but the fact that one of these functions, taste, for example, may be entirely abolished without disappearance of the others, has led to the belief that the gustatory fibers are distinct from those of general and tactile sensibility. The origin of the former has been the subject of much discussion. As to the posterior third of the tongue, authorities agree, with few exceptions, that its functions are controlled by the fibers of the glossopharyngeal proper. Opinions as to the innervation of the anterior two-thirds embrace a wide and varied range, the derivation of the gustatory fibers of the lingual nerve being variously attributed to the chorda tympani, the IX and the roots of the V nerve. The author's contribution to the solution of this question is based upon observation of two cases in which resection of the 2nd and 3rd branches of the V, with extirpation of the adjacent part of the Gasserian ganglion were followed by gustatory disturbance of the left lateral region of the anterior half of the tongue. Gustatory as well as tactile and dolorific anesthesia were manifest immediately after the operation. Amelioration of the first-named condition was noted within ten days, and an almost complete restoration to the normal was established within two months; although gustatory sensibility continued less acute upon the left side than the right. The writer asks and answers the following pertinent questions: "Could gustatory disturbances have depended upon tactile anesthesia caused by section of the 3rd branch?" and "Were such anomalies caused by vasomotor or trophic disturbances?" A negative reply is made to the former, in the statement that the return of gustatory sensibility preceded that of

the tactile, and that the former was markedly improved when tactile anesthesia was still complete. An answer to the second question is found in the fact that gustatory anesthesia was at its height immediately after the operation, when, presumably, the gustatory organs could not have been influenced by trophic disturbances; moreover, there was at no time evidence of trophic disturbance. The author maintains that gustatory disturbances in these two cases could depend solely upon section of specific fibers, and that section of the 2nd and 3rd branches of the fifth, having been performed at the level of the Gasserian ganglion, it is demonstrated that: (1) The trigeminal has gustatory fibers proper, which pass to the anterior margin and tip of the tongue either directly by the lingual branch of that nerve, or passing first into the chorda tympani at some more central point, for example, through a branch of the otic ganglion. (2) Granting the possibility of the chorda containing a part of the gustatory fibers of trigeminal origin, this does not exclude the fact that it may contain gustatory fibers of different origin, that is, from the intermediary of Wrissberg and the glossopharyngeal. This possibility must be admitted to explain the existence of slight gustatory sensibility immediately after the operation, and its almost complete restoration after a lapse of time.

2. *Traumatic Astasia-Abasia*.—The history of this case presented no special neuropathic family tendency, but severe mental shock to the mother during pregnancy would seem to have been responsible for the condition described. The chief points of interest are the occurrence of epileptic phenomena about the fourth year of life, followed later by astasia, induced by the lightest blow upon the head. The condition is contrasted with Brocq's description of Astasia-Abasia, namely, a morbid state in which the inability to stand or walk is in marked contrast to the integrity of sensibility and coördination of other movements of the lower limbs. In this case, astasia was the prominent symptom, abasia being noticeable only in a temporary staggering after a fall caused by percussion of the head, amounting only to a rudimentary abasia trepidante. Abasia was never spontaneous as described in the syndrome of Brocq, but always induced by a blow upon the head. The author leans to the pretty general belief in the hysterical nature of astasia-abasia, and in the case described, maintains that as the child was epileptic there was abnormal increase in excitability of the motor zone, and that as a latent hysterical neurosis found in the former a *locus minoris resistentiae*, it was rendered the sole center of induced morbid manifestations.

3. *Dystrophic and Myxedematous Infantilism*.—A study of five interesting cases (illustrated) is given from which, as well as from the literature of the subject, the following conclusions are drawn: (1) Maize intoxication of ancestors, especially of the pregnant mother, may induce premature exhaustion of vitality, degenerations, and above all, arrested development of the organism. (2) In the heritopellagrous are noted, high percentage of mortality, predominance of degenerative characteristics, especially cranial anomalies, dystrophic and myxedematous infantilism, and extinction of procreating power. (3) Thyroidal anomalies in cases of heredito-pellagrous arrested development, and frequently observed in pellagrous patients, demonstrate the ready mobility of this gland in the presence of maize poisoning, and account for dystrophic and myxedematous phenomena which arise, which in turn aggravate the phenomena of pellagrous intoxication.

R. L. FIELDING (New York).

Archives d'électricité médicale Expérimentales et Cliniques.

(1902. No. 109, January.)

1. The Electrical Reactions in family Periodic Paralysis. ODDO and DARCOURT.
2. On the Law of Stimulation of Nerves and Muscles. J. CLUZET.
3. The Electric Valve of Villard with Maximum and Minimum Spark Gaps. A. BÉCLÈRE.
4. The Employment of the Geissler Vacuum for the Production of Chemical Rays. Dr. STÉPHAN LEDUC.
5. A Comparative Study of the Foucault and of the Wehnelt Types of Interrupters. ALBERT TURPAIN.
6. A Note upon an Apparatus that Conveniently Permits a Preliminary Fluoroscopic Examination as well as a Radiograph to be Made of a Prone Individual with the Tube placed above the Subject. Dr. H. GUILLEMINOT.
7. A New Electrostatic Electrode of great Sensitiveness. DIAZ DELGADO.
7. A New Arrangement of the Static Machine and its Accessory Appurtenances. J. B. (Edit. note.)

1. *Electrical Reactions in Family Periodic Paralysis.*—In this paper the authors give a minute report of the electrical reactions observed in a patient with family periodic paralysis in whom all the muscles of the extremities and some of those of the trunk were totally paralyzed during one of the periodical attacks. From their observations of this case and from the description of the reactions occurring in cases of this disease previously investigated by Westphal, Oppenheim, Goldflam, and others, the authors conclude as follows: (1) During every attack the electrical irritability is altered, whether the stimulus is a direct or an indirect one; (2) no R. D. occurs; (3) the diminution of the irritability is in relation to the degree of the paralysis, and accompanies the latter in its distribution; (4) between the attacks the reactions become normal, at most a slight diminution in the irritability may still persist; since the topographical distribution of the paralysis appears to be irregular and not confined to regions supplied by particular, or spinal segments, and as the muscles respond more readily with indirect stimulation, the authors consider the seat of the affection to be in the muscles, and regard the disease as a variety of myopathy essentially functional in character.

2. *Law of Stimulation of Nerves and Muscles.*—As the result of investigation upon nerve muscle perforations from frogs and upon men, the author concludes that the law discovered by Weiss prevails approximately when nerves and muscles are stimulated through the skin by the unipolar method with ordinary electrodes. According to the author, Weiss' law, $Q = A + BT$, means in plain language, that, if an electric stimulus is applied to a nerve or muscle to produce a minimum response, the stimulus must put in motion a constant quantity of electricity plus a quantity proportional to the time of the discharge.

3. *Electric Valve of Villard.*—The author describes an auxillary apparatus for X-ray work composed of a Villard electrostatic valve shunted by a wide and a narrow spark gap, which arrangement is claimed to be very efficacious for rendering the induced current from induction coils more uni-directional, and for controlling with greater nicety the voltage applied to the X-ray tube.

4. *Geissler Vacuum Tubes*.—For obtaining intense violet and ultra-violet rays, the author recommends special tubes exhausted only to the usual Geissler vacuum in preference to the more costly and complicated arc light installations of the Finsue type. The intensity of action of such tubes is 60 times that of the arc light.

5. *Types of Interruptors*.—In this paper the author fully describes and contrasts the merits and the faults of Foncault's mechanical interrupter, and of various varieties of the Wehnelt and the Caedwell electrolytic interrupters.

6. *Fluoroscopic Examinations*.—A description extolling the merits of a rather complicated arrangement containing a horizontally-placed plate-holder, fluorescent screen, and a mirror on pinions, all of which are borne by a vertically-adjusted framework that can be placed beneath the X-ray examination table.

7. *Electrostatic Electrode*.—A description of a static electrode bearing an adjustable spark-gap attachment upon its long, hard-rubber handle.

8. *New Arrangement for Static Machine*.—A description of a Wimshurst machine with the rotors located in the lower part of the case, while the various dischargers, jars, etc., are arranged upon the low, flat top.
R. H. CUNNINGHAM (New York).

MISCELLANY.

CONTRIBUTION TO THE TREATMENT OF SYDENHAM'S CHOREA (Gazz. degli Osped., 1901, No. 144).

Jemma reports excellent results from lumbar puncture in two severe cases of chorea minor, 25 cc. of fluid being withdrawn; the effect was instantaneous. Choreic symptoms reappeared after a time though not in the original severity, and subsided entirely after repeated puncture, a cure being effected within four weeks. The favorable influence of this measure is believed to be due to decrease in endocranial pressure.
FIELDING (New York).

TREATMENT OF HYDROCEPHALUS (Archiv. f. Kinderheilkunde, Bd. xxxii, p. 329).

Immerwol reports treatment of 10 cases of hydrocephalus in children from 3 months to 2 years. (Nine congenital hydrocephalus and 1 acquired.) Therapeutic measures used were: antisiphilitic treatment; lateral puncture of the cerebral ventricles; puncture followed by injection of tr. iodine; and lumbar puncture. The author believes repeated lumbar puncture to be indicated in all cases of acquired hydrocephalus, and advises its trial in the congenital form; never omitting, however, antiluetic treatment.
FIELDING (New York).

TREATMENT OF NERVOUS DISEASES WITH BROMALBUMINOUS PREPARATIONS (Therapeutische Monatshefte, No. 1, 1902).

Of all the bromide preparations, bromeigon and brompepton contain the smallest amount of bromide, yet their influence is not less for this. Through bromalkalies the organism is more rapidly saturated with the drug; yet, on the other hand, the effect of brom-albumen is more protracted, and after the use of brompepton even in relatively large amounts, bromism is not observed. This may be due to the fact that bromide does not readily break up from the albumen molecule. Silberstein has used brompepton most frequently in epileptic convulsions. In his hands it has also proved serviceable in irritation of the cerebral cortex after acute alcohol-intoxication,

as well as in the treatment of chorea. In infantile convulsions it is to be administered by enema. Used in this way it quiets diarrhea, and its internal administration favorably influences gastric catarrh. This remedy is valuable in insomnia due to nervous excitation, as in neurasthenia, delirium tremens, maniacal conditions, etc., and is to be preferred to other hypnotics where prolonged use is necessary. Its analgesic properties make it desirable in cases in which the origin of pain lies in the central nervous system. Brompepton is best used in 20 per cent. watery solution. For children the best method of administration is by enema or brompepton malt-extract.

FIELDING (New York).

NEW TREATMENT OF TRUE EPILEPSY. Lion (Berliner klin. Woch., No. 52, 1901).

Lion has seen rapid and marked improvement in 20 advanced cases of epilepsy through the use of cerebrinum-Poehl; while symptoms in the first stages of epilepsy decreased after the first dose, and epileptic seizures gradually disappeared entirely. In severe cases a combined treatment of cerebrin and bromide is efficacious. Cerebrin or opocerebrin is to be given in tablet 0, 2-0, 3; and 0, 4-0, 6 administered daily; it should be used at least a month, bromide 2, 0-3, 0 pro die being given at the same time.

TRIONAL IN CHOREA (Brit. Med. Jour., 1901, Nov. 2).

Meade states that trional is sedative in chorea where preparations of arsenic and bromide fail entirely of effect. It is best administered in doses of 1 gm. in the morning, and 1.5 gm. at night, in fruit-juice, immediately followed by a drink of warm water, to insure its speedy absorption by the system. FIELDING (New York).

THE PHYSIOLOGICAL ACTION OF THE POLAR DISCHARGES OF HIGH PRESSURE INDUCED CURRENTS AND OF VARIOUS INVISIBLE RADIATORS. L. Freund, Sitzungsberichte der Akademie der Wissenschaften, Wien (cix, bd., viii hft.).

This is a voluminous experimental paper in four parts in which the author describes his methods of exposing rabbits and cultures of micro-organisms to the brush discharges and to direct spark discharges from the secondary terminals of a large induction coil and from the high potential terminal of an Ondin resonator. In a former paper in 1897 the author considered that the Röntgen rays themselves were responsible for the physiological effects, but from the results of the experiments described in this article he is led to conclude as follows: (1) Direct spark discharges either in the form of the spark discharge from the terminals of an induction coil, or in the form of a brush discharge from the D'Arsonval-Ondin apparatus can produce depilation in animals. (2) Directly-applied sparks can not only inhibit the development of, but even kill recently-planted or fully-developed cultures of *Straphylococcus pyogenes aureus*, *typhoid bacilli*, *diphtheria bacilli*, *tubercle bacilli* and *achorion schoenleinii*. (3) The effect of the directly-applied sparks is augmented by directly or indirectly grounding the culture container, by prolonging the exposure, by diminishing the distance between electrodes and container, by increasing the intensity of the primary current through the induction, and by a more rapid rate of interruption. (4) The above-mentioned action occurs under certain conditions through intervening thin layers of wood, paper, aluminum, tin foil or human skin. (5) Micro-organisms in suspension in fluids are also acted upon. (6) The physiological action of the negative spark discharge is more intense than that of the positive, although the extent of the area affected is less.

(7) The silent discharge is a variety of spark discharge in which the physiological activity becomes somewhat diminished, but by which, however, many undesirable accompaniments of the directly-applied sparks, for example, pain, are avoided. Although the extent of its field of action is greater than that of the actual spark discharge, its mode of action is qualitatively the same. (8) According to these experiments no physiological import can be attributed even to Röntgen rays as regards their influence upon bacterial life. (9) Neither Becquerel rays nor phosphorescent rays manifest physiological activity upon bacterial growths or upon normal skin. (10) The pathological changes produced in the skin by direct spark discharges consist of hemorrhages into the cutis, in inflammation and in the formation of vacuoles in the internal and middle coats of the arteries.

R. H. CUNNINGHAM (New York).

WEITERE BEITRÄGE ZUR PATHOLOGIE UND PATHOLOGISCHEN ANATOMIE DES UNTEREN RÜCKENMARKSABSCHNITTES (Further Contributions to the Pathology and Pathological Anatomy of the Lower Portion of the Spinal Cord). L. R. Müller (Deutsche Zeitschrift für Nervenheilkunde, 1901, xix, 5 and 6, s. 303).

AND

ZUR PATHOLOGIE DER TRAUMATISCHEN AFFECTIONEN DES UNTEREN RÜCKENMARKSABSCHNITTES. DAS GEBIET DES EPICONUS (On the Pathology of Traumatic Affections of the Lower Part of the Spinal Cord. The Region of the Epiconus). L. Minor (Deutsche Zeitschrift für Nervenheilkunde, 1901, xix, 5 and 6, s. 331).

In these two articles, the authors—the former of whom has previously made an important contribution to the subject—give the histories of cases of injury to the lower portion of the spinal cord and cauda equina and discuss the diagnostic points involved. By far the most interesting is Müller's first case, since it presents the picture of a pure conus lesion, confirmed by autopsy.

A man of thirty-seven, in 1887, fell from a height of ten meters, striking his back in the lumbar region on a beam. He lost consciousness and upon regaining it suffered scarcely any pain, but was completely paralyzed. At the start he was catheterized, but later the urine passed involuntarily and without sensation. After about six weeks he began to recover the use of his arms, eventually regained some power in the legs, and could walk with a crutch. Entire incontinence of urine and feces remained, but sexual power was retained and after the accident he begat two children. Examined by the author in 1896, he presented a prominence of the spine of the first lumbar vertebra, weakness in the abductors and external rotators of the thigh and flexors of the leg, complete paralysis of the glutei, and all the muscles of legs and feet. The calf muscles, however, showed no wasting, but were thick and felt firm. There was anesthesia as high as the knees in front and extending up an area on the back of the thigh and over the buttocks. It was complete except over a narrow area on the inside of leg where touch sense was preserved. There was also loss of temperature and pain sense over penis and scrotum. Electrical irritability was lost in the gluteal and calf muscles. The patient gradually failed in health and died of pulmonary tuberculosis in April, 1900.

The autopsy showed an old fracture of the first lumbar vertebra, with compression and entire destruction of the cord from the fourth lumbar throughout the sacral segments, the lower part of the conus having escaped. The nerve roots forming the cauda equina were little affected. Microscopical examination showed in the cervical

and dorsal regions, a small area of degeneration in the columns of Goll, a slight triangular area of degeneration in the antero-lateral tract, and dilatation of the central canal. In the upper lumbar region degeneration involved all of the columns of Goll, while the fibers of Burdach's column were extraordinarily thick and deeply stained. In the second lumbar segment the deformity began, and in the third, the entire posterior part of the cord was destroyed, but the roots were recognizable though pushed to one side, and were well medullated.

In the fourth and fifth lumbar segments the cord structure was unrecognizable, its usual place being filled with glia tissue. Lateral from this, however, were numerous well-preserved nerve bundles, and in the middle of it, a bundle of well-medullated fibers, which were continued above in Burdach's column, and from the way they stained, etc., appeared to be newly formed. In the sacral segments similar conditions existed, the posterior roots contained fewer medullated fibers than the nerves of the cauda. The bundle of medullated fibers was still visible in the mass of glia tissue. On the lowest segments, the outline of conus was again visible, and there were even some cells at the base of the anterior horn which appeared to be ganglion cells. The cross section in fact appeared normal. The remaining roots forming the cauda, contained mainly well-medullated fibers, only a few of them showing degeneration. In the nerves passing to the paralyzed muscles there was some rarefaction of fibers, but little degeneration. There was, however, such a marked interstitial deposit of fat that the cross section of the nerve was far greater than normal. In the affected leg muscles the muscular tissue was largely replaced by fat. The author analyzes this case, and tells why he long before had diagnosed conus lesion. Most of the symptoms might be produced by lesion of the cauda equina below the fourth lumbar root. The patellar reflex was lost, however, while the quadriceps continued to functionate well; also the sensory fibers from knee and thigh were intact. This was explained as due to breaking of the reflex arc, by a centrally-located lesion, which would also account for the dissociation of sensation found in an area on the legs. The complete paralyses of trunk, arms and head which existed for several weeks, was explained by assuming that there was a hemorrhage filling the central canal, which was later absorbed, and since the autopsy showed that a dilatation had existed, even though he found no trace of blood pigment, the author thinks that his explanation was probably correct. That the lowest portion of the cord (the two coccygeal segments) was preserved may explain the astonishing fact, that though there was incontinence of urine and feces, erection and procreation were still possible, and we should locate the erection center in these segments. It is necessary, however, to assume a connection of these segments with the brain, and this he thinks was effected through the small bundle of newly-formed fibers found passing through the replacing neuroglia mass, and eventually reaching the columns of Burdach. This was also evidenced by the fact that in penis and scrotum touch sense was preserved.

Müller gives the clinical histories of two more cases, and from the study of these three and their comparison with other observations, he feels justified in drawing the following conclusions: The first lumbar vertebra is the one most frequently fractured in injuries to the lower portion of the spinal column. The preservation of the anal reflex shows that the lowest part of the cord has escaped

injury. If the sexual function is retained, not only must the lower half of the conus be preserved, but it must remain connected with the cord above, and the brain.

Minor calls particular attention to the fact that between the second and third sacral segments there occurs a marked change in the microscopic picture. This was first described by Müller. The anterior group of motor cells here disappears and a new group of multipolar cells appears in the region between anterior and posterior horn. The posterior commissure disappears and there is found instead in the medioventral part of the posterior column a sharply-defined bundle of longitudinal fibers which passes into the gray matter and proceeds directly to the region of the intermediate cell group just mentioned.

Further, the pyramidal tracts extend only to the third sacral segment, descending degeneration always disappearing at this point. The region from the third sacral segment caudally forms a special part of the spinal cord which has been called the conus, and lesions confined to this region give a typical clinical picture. In lesions of the region immediately above the third sacral, however, the clinical picture is much more complicated, and it has been thought by some authors impossible to construct one which is typical. This, Minor thinks, is only true for complete transverse lesions, in which case symptoms from the adjoining lower segments are also produced. When a central lesion of the gray matter or of the corresponding roots from the region in question occurs alone, or when the two are combined, the symptoms produced are typical. These Minor gives as two negative and several positive. The negative symptoms are integrity of the sphincters and preserved knee-jerk. The positive symptoms are paralysis in the region of the sacral plexus, in every case the peroneal nerve being most severely and permanently affected. For this region (the fifth lumbar and two upper sacral segments) he proposes the name "Epiconus." As illustrating his views he gives the clinical histories of six cases, in none of which was there an autopsy, however. He also analyzes several cases from other sources. The two articles give an excellent résumé of the subject, but space permits of no more than the outline of them here presented.

ALLEN.

DIAGNOSTIC DIFFERENTIEL DE L'HÉMIPLEGIE ORGANIQUE ET DE L'HÉMIPLEGIE HYSTÉRIQUE (The Differential Diagnosis of Functional from Organic Hemiplegia). Babinski (Gazz. des. Hôp., Vol. 73, May 5 and 8, 1900, p. 521 *et seq.*).

The author points out that in organic hemiplegia the paralysis is limited to one side of the body, while in hysterical hemiplegia it is not. This observation applies particularly to the face, the paralysis of which in the hysterical form is generally bilateral. In the organic form the paralysis is not systematic. If, for example, one side of the face is profoundly paralyzed, the weakness remains quite evident during the bilaterally-associated movement of the face, but in the functional the paralysis is usually systematic. For while the unilateral movements of the face may be completely abolished, the facial muscles on the paralyzed side act well during the bilateral movements. In the organic there is muscular hypotonicity, principally at the beginning, which is shown in the upper limb by the exaggerated flexion of the forearm. In the functional form there is no hypotonicity; when there is, for example, facial asymmetry, it is due to spasm of the one side. The periosteal and

tendon reactions are either abolished, diminished, or increased at the beginning in the organic, and later they are nearly always exaggerated with ankle clonus; but in the functional form these deep reflexes are unaltered, and there is no ankle clonus. In the organic hemiplegia the skin reflexes are generally altered; the abdominal and cremasteric are usually weakened or abolished; the movement of the toes on eliciting the plantar reflex is one of extension; in the functional hemiplegia the cutaneous reflexes are unaffected, and the plantar reflex is the normal flexor response. The character of the contracture in the organic paralysis could not be reproduced by a voluntary contraction of the muscles while in the functional paralysis it well might. The evolution of the organic hemiplegia is regular; contracture follows flaccidity; improvement is progressive, and the paralysis does not fluctuate, now better, now worse. In the functional paralysis the evolution is capricious; the paralysis may remain indefinitely flaccid, or it may even be spasmodic at the beginning. The paralysis is variable in degree and in form, and there may be actual remissions.

JELLIFFE.

LE SYNDROME MIGRAINE OPHTHALMOPLEGIQUE COMME PREMIÈRE MANIFESTATION DANS UN CAS DE SYPHILIS CÉRÉBRALE (Ophthalmoplegic Migraine, an early Manifestation of Cerebral Syphilis). H. M. Lamy (Bull. de la Soc. Méd. des Hôpitaux, Vol. xvii, 1900. Dec. 14, p. 1,188).

A woman, aged twenty-six years, had violent migraine two months following confinement. The pains were chiefly localised in the orbital regions, and were accompanied by nausea and vomiting. Both sides were attacked alternately but the pain was more severe on the right. The eyelids were the seat of intense pain, and during the migraine there was slight ptosis on the side involved, which appeared with the commencement of the headache, and generally lasted for some hours. During one attack the patient lost consciousness. Upon recovery the migraine had vanished. Afterwards she was without pain for fifteen days. The attacks then reappeared, were more frequent and severe, and became distinctly unilateral. Ptosis of the right lid followed and continued for a month; later there was double ptosis for five days, but only that on the right side was permanent. Finally, the hemicrania alternated with remarkable regularity, and always became worse during the evening, rendering sleep impossible.

Six months after the onset there was complete right ptosis, and the right pupil was dilated and responded only feebly to light. The left eye was normal. There was loss of memory, the gait was somewhat hesitating and uncertain, and the patient complained of persistent nausea. Although no syphilitic history was obtained cerebral syphilis was diagnosed and energetic treatment adopted. After giving mercury and iodide for a few days the headache and ptosis disappeared and the memory improved. When discharged from hospital the patient neglected treatment and the migraine returned. Resumption of medication ameliorated the condition, but the right pupil became permanently dilated and the opposite external rectus paralyzed.

The unilateral ptosis and the later implication of the sixth nerve together with the other symptoms, indicated something more than simple or periodic migraine. If no organic lesion was present, localised arterial spasms are suggested as explaining the intermittent and alternate paralyses.

JELLIFFE.

ZUR FRÜHDIAGNOSE DER TABES (Early Diagnosis of Tabes). Erb (Münch. med. Woch., Vol. 47, 1900, July 17, p. 989).

The author refers to larval forms of tabes dorsalis, the diagnosis of which is difficult, and alludes to the fact that such forms may persist for years. The points of diagnostic value are (1) "lightning" pains, (2) slight paresthesia, (3) diminished sexual power, (4) Romberg's symptoms, and (5) unilateral Argyll-Robertson's pupil. If to these symptoms be added the history of a previous syphilis, the diagnosis is made certain. The knee-jerk may or may not be absent; thus in five cases the knee-jerk was present, but the presence of the other signs confirmed the diagnosis. In one class of cases visceral crises (gastric, laryngeal, recto-vesical, etc.) appear early, and such cases may persist in the larval condition for a considerable time, or may develop into typical tabes dorsalis. For treatment mercurial inunction should be freely employed, and suspension may be regularly carried out by the use of suitable apparatus. The ultimate prognosis is, however, not favorable.

JELLIFFE.

DU TRAITEMENT DE LA CHORÉE HYSTÉRIQUE PAR L'IMMOBILIZATION (Treatment of Hysterical Chorea by Fixation). L. Huyghe (Le Nord Médical, Vol. viii, 1901, Aug. 1, p. 173).

Huyghe has been able to cure six cases by immobilization. The patient is chloroformed slightly, and the choreic limbs vigorously massaged, so that the patient feels it, and at times even painfully. Thus the choreic has the belief that she is being operated upon. The limbs are then placed in splints and immobilized for five or six days, and generally all choreiform movements cease. If they still persist, the limbs are again immobilized. This is a species of autosuggestion which has met with some permanent successes.

BASTEDO.

HYDROPHOBIA AND THE LEUCOCYTES. J. Courmont and C. Lesieur (Journal de Physiologie et Pathologie Générale, July, 1901).

The question as to whether there occurs in this disease a quantitative or qualitative modification in the number of leucocytes, and, if so, whether it can be utilized for diagnostic purposes, both before and after death, has recently been studied by these authors. Their researches were carried on clinically on a man, the cat and the dog and experimentally on the guinea-pig, rabbit and dog. Their blood smears were stained with Erlich's tri-acid solution, eosin-hematoxylin and thionine. They find that at times the total number of leucocytes is considerably raised, especially in the terminal stages. Often it is preceded by a hypoleucocytosis particularly in rabbits. Independent of the degree of total hyperleucocytosis there occurs in man a marked increase in the number of the polynuclear neutrophilics so that they constitute from 84 to 88 per cent. of the total number of leucocytes. This increase is established at the time of appearance of the nervous symptoms and augments until death. No abnormal leucocytes or nucleated red blood-cells are present. Good preparations can be made from the pulmonary blood within six hours after death, but this contains a less number of the leucocytes than other blood. They conclude that the total leucocyte-count is not available for diagnostic purposes at any stage of the disease. From the onset of the nervous symptoms the differential count is of great value. An increase in number does not absolutely establish a diagnosis as this is found in other conditions, but a normal or reduced number at this stage absolutely negatives a diagnosis of rabies.

HIGLEY.

Book Reviews.

A PRACTICAL TREATISE ON MATERIA MEDICA AND THERAPEUTICS. By JOHN V. SHOEMAKER, M.D., LL.D. Fifth edition. Philadelphia, F. A. Davis Company.

Another edition of Shoemaker's well-known treatise leads us to ask what it is that creates such a large demand for this work on therapeutics. Perhaps it is its encyclopedic nature, for scarcely a known drug is omitted from the strictly alphabetical "classification." The pharmacy and chemistry (called "Pharmacology" by the author) are briefly and well written, and, by much space-saving, a large number of useful prescriptions, written in both metric and English systems, have been included in the text. Hydrotherapy, massage, electricity, climate, diet, music, etc., are given proper attention. But little attempt is made to study the comparative merit of allied drugs. Both the British and the United States Pharmacopeia are represented, but there are no especially new features in the present revision.

BASTEDO.

L'EPILESSIA, EZIOLOGIA, PATOGENESI, CURA. By Dr. PAOLO PINI. Ulio Hoepli. Milan, Italy.

This pocket manual is a carefully written study of epilepsy and its treatment from an experimental and therapeutic standpoint. It might be considered a series of essays on the history of the study of epilepsy, the theories of causation, and the numerous methods of treatment based on the several theories. Under the theory of intoxication are considered the sweat, urine, blood, gastric juice, cerebro-spinal fluid, acid auto-intoxication, methylene blue, Welch's cure, etc. The infective and dynamic theories are given due attention. One-third of the volume is devoted to a careful criticism of the use of various bromine-containing substances such as bromalin, bromoform, bromipin, monobromated camphor and the bromides of ethyl, ethylene, potassium, ammonium, strontium, rubidium, gold, zinc and nickel.

Hypnotism, electricity, massage and physio-therapy are each given sections, and a chapter is devoted to farm colonies. Following each chapter is a very full bibliography covering American, English and various European writings.

W. A. BASTEDO.

TRATTATO DI PSICHIATRIA. Ad uso dei medici e degli studenti. Del Prof. BIANCHI LEONARDO. Direttore della Clinica Psichiatrica e Neuropatologica della R. Universita e del Manicomio provinciale di Napoli. Puntata 1a. Casa Editrice Cav. Dott. v. Pasquale Napoli.

This, the first fascicle of a treatise on psychiatry, is a modern exposition of the Italian school. Translations of foreign works into Italian there are plenty, but this work by Dr. Leonardo stands out almost alone as a native product.

The author says that the great amount of original work on the anatomy and the physiology of the nervous system that has come from Italian laboratories, more than warrants an authori-

tative expression of the present knowledge of psychiatry in that country.

In the first fascicle of some 170 pages the general fundamentals of the anatomy of the nervous system are given. This has been done in a direct and comprehensive manner, not too exhaustive, nor yet superficial; but the most modern of observations have been brought into correlation with older views.

The work is richly illustrated and the author is deserving of much credit for the excellent presentation made. JELLIFFE.

LA MIGRAINE ET SON TRAITEMENT. Par Le Pr. PAUL KOVALEVSKY. Vigot Frères, Editeurs, Paris.

Migraine has always been a mystery notwithstanding the fact that research after research has been conducted, with the view to compel the organism to yield up the secret of its causation. Many are the facts now known, but the fundamental disturbances have thus far escaped the ultimate tests of physiologist, pathologist, or chemist. The present short dissertation is a very excellent one, written in the illuminating manner that French thought so fully represents; but it cannot be said that Kovalevsky has given any newer interpretations. He has, however, brought together a great number of the latest researches and has performed a signal service for the student of this affection, although the author is far from conversant with the excellent work done in this country along chemical lines, notably the work of Herter and others.

The treatment of the affection is very fully and practically discussed. SMITH.

A SYSTEM OF PHYSIOLOGIC THERAPEUTICS. Edited by SOLOMON SOLIS COHEN, A.M., M.D.; Volumes III and IV, Climatology, Health Resorts, Mineral Springs. By F. PARKES WEBER, M.A., M.D., F.R.C.P. (Lond.) With the Collaboration for America of GUY HINSDALE, A.M., M.D. In Two Books. Book I—Principles of Climatotherapy, Ocean Voyages, Mediterranean, European and British Health Resorts. Book II—Mineral Springs, Therapeutics, etc.

The medical practitioner who seeks a guide to the conditions of climate, on account of which certain places have become known as health resorts, will find this work of practical value. A general outline of the principles of climatology in relation to health and disease is followed by detailed treatment of ocean voyages, their indications and contra-indications, and the location, altitude, rainfall, winds, proximity to water, etc., of the various health resorts of the world. The conditions at different seasons, effect of ocean currents, value of mineral springs, etc., are also included. The special diseases for which each resort is famous and for which it is especially adapted are set forth, the author not omitting mention of diseases for which the climate is unsuitable. It is noteworthy that the resorts are studied not merely as to climate, but also as to their social and educational advantages, commerce, ease of access, and expensiveness. A portion of the fourth volume is devoted to a list of disorders with the consideration of their treatment by climatological means. For example, for hay fever such American resorts as the White Mountains, Cape Breton, Muskoka and Banff are recommended; certain places in New Jersey, Long Island, etc., are probably good, but not certainly safe; and other places are useless for either prophylactic or curative purposes. Maps showing altitude, rainfall,

currents, etc., illustrate the physical geography of the earth, and add to the value of these books, whose information is made easily accessible by a very complete index.

W. A. BASTEDO.

A TEXT-BOOK OF THE PRACTICE OF MEDICINE. By Dr. HERMANN EICHORST, Professor of Special Pathology and Therapeutics, and Director of the Medical Clinic of the University of Zurich. Authorized Translation. Edited by Dr. AUGUSTUS A. ESHNER. In two volumes. W. B. Saunders & Company. Philadelphia and London.

Eichorst's Practice, although a comparatively recent work, at once acquired a very large sale in Germany notwithstanding the presence of a number of other very excellent treatises on the subject. The English-speaking medical public is to be congratulated on having this work in its present convenient form.

In some ways Eichorst differs from many of the works now in use. His keynote throughout is that of the worker with the sick, and the especial emphasis is laid on the treatment of abnormal conditions. His suggestions are numerous and helpful.

There is no lack of good sound fundamentals bearing on the subjects of pathology and diagnosis, in fact, these necessary descriptive portions are full and explicit, but they seem to be so considered as to lead up to the ultimate aim, the treatment of the patient.

In a multitude of counsellors there is much wisdom, and we are glad to welcome this new addition to the working forces in the combat with disease.

R. M. BROWN.

CLINIQUE DES MALADIES DU SYSTÈME NERVEUX. By Prof. F. RAYMOND. Cinquième Série. Octave Doin, Paris.

This book carries the reader through the fifth course of clinical lectures delivered by Prof. Raymond at the Salpêtrière; the style, being that of the lecture room, seems to bring one into personal touch with the lecturer. It embraces 650 pages, of which something short of 140 are devoted to a careful study of partial or Bravais-Jacksonian epilepsy in its various motor, sensory and psychic manifestations. A chapter on the topography of the sensory cortical centers is interpolated in this section of the work, embodying chiefly what is *not* known upon the subject rather than any important addition to the knowledge of sensory areas. Illustrations are freely used in the elucidation of this subject, as they are throughout the book, where necessary to a clear presentation of the conditions described. Of special interest are the lectures devoted to tuberculous meningitis "en plaques," much space being given to its early diagnosis, as offering the possibility of cure through operation. Several atypical cases of disseminated sclerosis are presented in comparison with the usual manifestations of that disease; the polymorphous symptomatology of hysteria receiving consideration in a section devoted to the differential diagnosis between that condition and disseminated sclerosis; the frequent occurrence of the two conditions simultaneously being noted. The subject of brain tumors is carefully and minutely treated, with special reference to diagnosis as to site, variety, etc. One of the hopeful sections, hopeful because of the suggestions of cure, is that dealing with polyneuritis, attention being called to its not infrequent confusion with myelitis. Among the rare conditions presented is a case of chronic progressive ankylosis of all the joints including the vertebral column, and simulating the condition described by Marie as "spondylose rhizomélique." Other subjects treat-

ed are: gloss-o-labio-laryngeal paralysis; bulbar asthenia; sensory disorders in tabes; objective disturbances of sensibility in syringomyelia and disseminated sclerosis; dorsal Pott's disease; scleroderma; and hysterical word deafness.

A desirable feature, as facilitating ready reference, is a short clinical résumé following the detailed description of illustrative cases, and a condensed summary of diagnostic points, and treatment at the end of each lecture; the strength of the work lies in diagnosis, treatment being from the nature of conditions discussed limited largely to the palliative. R. L. FIELDING (New York).

PERU. HISTORY OF COCA. The "Divine Plant" of the Incas, with an Introductory Account of the Incas, and of the Andean Indians of Today. By W. GOLDEN MORTIMER, M.D. J. H. Vail & Co., New York.

This is an exhaustive monograph of some 576 pages written in a most interesting manner on a topic of increasing importance. When in 1884 it was discovered almost by accident, as it were, that cocaine had its now well-known anesthetic effect on the conjunctiva, a renewed interest was taken in this drug, which for unknown centuries had been used empirically by a people who were the leaders in the aristocracy of an earlier day. Since 1884 many researches have been given the profession.

The author first very clearly sets forth, what is known to all students of pharmacognosy, that Coca is not Cocaine, and that there is much more to be said on the subject of the use of the crude drug as a tonic and restorative than to fall in line with some modern day followers of the W. C. T. U. class, and to condemn its use because of the occurrence of a cocaine habit in some degenerate individuals; most of whom have passed through the successive stages of alcoholism and morphinism to cocainism. It is certain that the author makes an excellent brief for the use of this potent drug.

There are exceedingly complete and entertaining chapters on the botany, chemistry, physiology and therapy of coca, with many interesting interpolations of cognate questions; the action of coca on the muscular tissue and nervous organization being very full and authentic.

Taken at large this is an interesting and instructive monograph and the author deserves much credit for his industry and perseverance in its preparation. JELLIFFE.

News and Notes.

THE NEXT Congress of Alienists and Neurologists of France and French-speaking countries will be held at Grenoble, August 1-8, 1902. Dr. E. Régis, professor of psychiatry at the University of Bordeaux, will preside. The following papers will be read: (1) Nervous Pathology, Tics in General, M. Noguès, of Toulouse. (2) Mental Pathology: Conditions of Anxiety in Mental Disease, M. La Lanne, of Bordeaux. (3) Legal Medicine; Auto-accusation from the Medico-legal Standpoint, M. Ernest Dupré, of Paris.

A SIMPLE and effective method of illumination of the grounds of the asylum at Bailleul, through the insertion at frequent intervals in the top of the surrounding wrought-iron fence, of a small quantity of radium, has been adopted. It is believed that the grounds will thus be so well lighted that escape of patients during the night will be impossible.

Giornale di Psichiatria Clinica e technica Manicomiale is the new title of an old journal devoted to alien studies in Italy. Previously, this journal has been known as the "Bolletino del Manicomio provinciale di Ferrara." The former editor, Dr. Ruggero Tambroni, remains as Director. Analyses of its contents will appear in the JOURNAL OF NERVOUS AND MENTAL DISEASE.

THE Biological Laboratories of the H. K. Mulford Company at Glenolden, Pa., make another step forward in the progress of work in serum-organotherapy, and in the investigation of infectious and contagious diseases, by securing the services of Joseph J. Kinyoun, M.D., Ph.D., late Surgeon of the Marine Hospital Service, and Director of the Hygienic Laboratory of the Marine Hospital Service at Washington.

Dr. Kinyoun is widely and favorably known at home and abroad as a sanitarian and scientific investigator, and has served the government on numerous occasions as special delegate to International Medical Congresses. He is devoted to original research in Bacteriology, and in the interests of the government he has visited the various bacteriological laboratories in this country and in all Europe and Japan. Dr. Kinyoun received special instruction from Professors Koch, Behring, Pasteur and Roux, of Paris and Berlin, as representative of the government, thus acquainting himself with the progress made in serum-organotherapy and in the investigation of infectious diseases. He is peculiarly fitted for the directorship he now assumes, and under his administration there will be still further advances made in the field of biology as applied to medicine.

STUDENTS about to graduate, who are unable to secure positions in general hospitals, or young physicians whose terms are about to expire in general hospitals and who wish to enlarge their experience, are now offered an opportunity to enter the New York State Hospitals as Internes or Clinical Assistants.

These positions provide lodging and board. Appointments are made for a year. Some twenty-eight positions will be opened in the

fourteen State Hospitals situated in the following places in New York State: Utica, Buffalo, Gowanda (homeopathic), Binghamton, Kings Park, L. I., Flatbush, Brooklyn, Central Islip, L. I., Ward's Island, New York City (two hospitals), Rochester, Ogdensburg, Poughkeepsie, Willard, Middletown (homeopathic).

Although these are hospitals for the insane, yet they are so large that opportunities for experience in general medicine are abundant. Each hospital is well equipped with clinico-pathological laboratory and apparatus, operating rooms, trained nurses, hydrotherapeutic and electrical devices and good medical libraries. The field for study in general medicine is excellent, and surgical operations of all kinds are frequently performed, either by resident or consulting surgeons. It is thought that many students who wish hospital experience and are unable to obtain it because of the relatively few places available in general hospitals, may be glad to learn that positions of this kind have been thrown open to them. It is believed that young physicians wishing hospital experience will profit by a year's residence in one of these hospitals, and such as desire to continue in special work would be eligible for appointments subsequently to salaried positions in the same service. No examinations will be necessary, but application must be made in person with good references, directly to the medical superintendent of any of the above-named hospitals, or to Dr. Frederick Peterson, President of the Commission in Lunacy, 4 West 50th St., New York City.

Beiträge zur Psychiatrischen Klinik is the title of a new periodical edited by D. R. Sommers. A full analysis of the first number appears in this issue of the JOURNAL.

SYLLABUS OF BACTERIOLOGY is the title of an interesting pamphlet issued free to physicians by the Palisade Manufacturing Company, of Yonkers. This is an interesting and helpful volume, and the publishers are to be congratulated on putting forth such valuable and at the same time, ethical advertising matter.

THE Eighth Annual Report of the Craig Colony for Epileptics has just been issued. Unlike many reports coming from similar institutions, it really tells something about the work and the progress of the fundamental ideas of the plan. We commend it as good reading and interesting, not dry and statistical.

DR. OPPENHEIM'S "Lehrbuch der Nervenkrankheiten," which has recently appeared in its third edition, is now translated into English, Italian, Russian and Spanish.

THE STATE BOARD OF CONTROL of the Iowa Hospital for the Insane, has made public the announcement of the resignation of Dr. Gershom H. Hill as superintendent of the hospital for the insane at Independence, Iowa. Dr. Hill's term expires in June, and he states in a formal resignation filed with the board of control that he will not be a candidate for reappointment at that time. This amounts to a resignation, since there is no question but that Dr. Hill, had he so desired, would have been continued in the capacity of superintendent at Independence, where he has been located for over twenty-one years.

Dr. Hill announces to the state board of control that it is his intention to go to the city of Des Moines when he leaves the hospital at Independence, and enter private practice as a specialist in insanity. He is a man of some sixty years of age, and the most of his life

has been devoted to the study of medicine, especially as applied to the diseases of the brain.

Dr. Hill was appointed first assistant at Independence in 1874, when he began his career as an institution man in Iowa. In 1881, seven years later, he became acting superintendent in the same institution, and has served in that capacity ever since, the board of control voting unanimously to retain him when they assumed control of the state institutions four years ago. Dr. Hill has grown gray in the service of the hospital at Independence, and he finds that the duties are becoming heavier for him than in former years. It is, therefore, for the sole reason of being relieved from the care and responsibility of his present office, and of having his time more at his own disposal that he resigns.

The board of control expresses great regret in the loss of Dr. Hill from the institution at Independence. For some time, however, they have known that this would be the case sooner or later, but not until now was the formal announcement made possible. There are already several candidates in the field, and a large number of others will probably be announced as soon as Dr. Hill's resignation is generally known. Judge Kinne, chairman of the board, stated this morning that the appointment of Dr. Hill's successor would not be made for some weeks to come in all probability, as the board wanted plenty of time to look about and decide upon an all-round competent man.

Dr. John C. Doolittle is a candidate for the place. Dr. Doolittle is first assistant at Independence at present, and would be in line for the position from the standpoint of promotion. Although Dr. Hill names no one in his resignation, he refers to the fact that those professional men under him at the hospital are well qualified and worthy of promotion. Dr. A. L. Warner, of Chicago, is also a candidate for the position. Dr. Warner is in Des Moines this week, scheduled to read a paper before the conference of the board of control and institution superintendents on "Institutions for the Insane in Other Lands." He has been engaged in institution work in Illinois in past years. Dr. William F. Wegge, of Milwaukee, is also a candidate for the place.

JUDGE LEVENTRITT last month discharged a damage suit brought against Drs. Austin Flint and A. Fitch for illegal detention of a patient at the Long Island Home at Amityville. The case was not even presented to the jury, and the plaintiff was compelled to pay costs and extra allowances for the defendants. It was a striking victory for the cause of the alienist and sanatorium physician.

THE
Journal
OF
Nervous and Mental Disease.

Original Articles.

THE KNEE-JERKS IN TRANSVERSE LESION OF THE
SPINAL CORD.*

By
WILLIAM ALDREN TURNER, M.D.,

FELLOW OF THE ROYAL COLLEGE OF PHYSICIANS OF LONDON; ASSISTANT
PHYSICIAN TO THE NATIONAL HOSPITAL FOR THE PARALYZED
AND EPILEPTIC, QUEEN SQUARE; AND TO KING'S
COLLEGE HOSPITAL, LONDON.

INTRODUCTION.

When asked by your President to communicate a short paper to this Society, it appeared to me that no neurological problem would form a more lucrative subject for discussion than the condition of the knee-jerks in transverse lesion of the spinal cord. The reflex phenomena consequent upon this lesion differ considerably according as they are studied experimentally or clinically; and the explanations of the varied symptomatology are numerous and offer a rich field for argument and debate. The subject also, I find, has engaged your attention from time to time in its different aspects during the past few years. "The State of the Reflexes in Supralumbar Lesion of the Cord," was the subject of a paper by Dr. Fraenkel and a discussion in 1897¹; it was incidentally mentioned by Drs. Fraenkel and Collins in a paper "On the Clin-

*A paper read before the New York Neurological Society on April 8, 1902.

ical Study of Some Reflexes,"² in 1900, and it was recently (1901) debated in connection with a communication from Dr. G. L. Walton upon "The Study of Spinal Fracture with Special Reference to the Question of Operative Interference."³

I propose to look at this subject rather from the experimental than from the clinical side, with the view of ascertaining how far the results of experiments upon animals may be applicable to the special phenomena of trans-lesion of the spinal cord in man; and to see whether the differences in the reflex phenomena, which are stated to exist, may not be brought into harmony with each other and explained upon general physiological principles.

As this subject has been a fruitful field for investigation and research, an extensive literature has gathered around it; but I shall deal only with a comparatively small part of the question, viz., the condition of the knee-jerks; as to go more deeply into it would involve the consideration of the whole subject of the reflex phenomena of the spinal cord, a matter more satisfactorily studied in the text-books of physiology.

Experimental Observations.—It is commonly stated that experimental cross section of the spinal cord above the lumbar enlargement in vertebrate animals leads to no immediate interference with the tendon reflexes; but that as time goes on after such operation, the knee-jerks become exaggerated, and the resulting paraplegia, which is at first of the flaccid type, assumes later on the rigid and spastic character, so commonly seen in old-standing cases of acute myelitis in man. In man, on the other hand, a fracture-dislocation of the vertebral column in the cervical and dorsal regions, is productive of permanent, flaccid paralysis of the limbs, and loss of the knee-jerks; and if the lesion be complete, no tendency at all towards rigidity or contracture.

A reference to the literature of the experimental side of the subject, however, shows, that the view expressed above is by no means universally accepted, and that much variation has been observed by experimenters upon the state of the knee-jerks, both immediately and some time after complete division of the spinal cord.

An early observation by Furbringer⁴ showed that trans-

section in the upper dorsal region in rabbits, was followed by lively knee-jerks, a tapping of the patellar tendon bringing about contraction of the quadriceps extensor muscle, dorsiflexion of the foot and an adductor jerk upon the same and on the opposite side.

The theory propounded by Rosenthal and Mendelsohn⁵, from a number of experiments on trans-section at different levels of the cord, necessitates for the existence of the reflexes the intact connection of the afferent and efferent reflex paths with the upper parts of the spinal cord, more especially with that portion lying between the calamus scriptorius and the cervical enlargement, the "cervico-bulbar region." Destruction of the cord in or about this neighborhood interferes with the transference of the afferent impressions to the efferent paths and abolishes the reflexes. The position held by these observers is that on this account, high trans-section of the spinal cord abolishes all tendon and visceral reflexes, weakens the plantar reflex and leads to an enduring failure of the skin reflexes.

Some interesting experimental observations by Gad and Flatau⁶ on dogs may here be mentioned. A brief summary only of their results is given.

These observers had no dogs in which the knee-jerks were absent during the whole period of life after the trans-section, nor any dogs in which the absence of the jerks lasted for a long time. In all the cases of high trans-section the knee-jerks were weakened, and in some temporarily abolished.

Tapping the patellar tendon in the cases in which the knee-jerks were absent sometimes caused a little urine to be expelled from the bladder; and in others there were long periods during which the knee-jerk was elicited only as a weak muscular contraction, without any extension of the limb. Comparisons were made with dogs in which the cord was divided between the dorsal and lumbar regions. In the latter, the knee-jerks were always easily obtained—a weak tap on the tendon producing an ordinary extension of the limb.

From these observations it is obvious that a weakening, or temporary abolition, of the knee-jerks is more commonly noted after high than after low trans-sections; but that in no

case was a permanent abolition of the jerk observed.

But the most elaborate experiments upon this subject are those of Sherrington⁷. He has worked chiefly with monkeys, and has not only studied the condition of the knee-jerks, but has entered fully into the details of all the reflexes belonging to the portion of cord isolated by a trans-section. His main conclusions are: following trans-lesion in the region of the cervical enlargement, the skin reflexes are temporarily abolished; the knee-jerks disappear to reappear in the course of days or even weeks; and in some monkeys, as also in cats and dogs, the knee-jerks are not even temporarily abolished even in sections as high as a cervical one. His conclusion is that "shock" does not last more than a few days, but that the permanent effects of the lesion upon the isolated portion of cord are comparable to the "isolation-alteration" of Munk. This condition is probably well marked in monkeys. In man, "shock" may be more protracted than in animals, and the "isolation-alteration" speedy and severe. The prolonged loss of the knee-jerk in cases of high transverse lesion in man would seem to bear this out.

The influence of "shock" in laboratory trans-sections seems to be particularly small. As pointed out by Sherrington its effects when present are limited almost entirely to the distal parts, little, if at all, headward of the lesion; and there is little difference in the severity of the shock whether the section is in the lower thoracic, or in the cervical regions.

We now come to the suggestive experimental work of Marguliés⁸. This observer varied his experiments by producing the lesion of the cord in one of two ways, either by simple trans-section with a knife, or by squeezing or crushing the cord with a blunt instrument. His conclusions are remarkable. In all the cases (rabbits and dogs) in which the cord was cut across with a knife the knee-jerks were increased and rigidity and contracture of the hind limbs ensued.

In those in which the cord was crushed by some blunt instrument the palsy was of the flaccid type and the knee-jerks remained absent for at least a week. In a dog the jerks remained in abeyance during the three days the animal lived after the operation. In one animal the knee-jerks returned

on the second day, but here the lesion was incomplete.

From these facts the deduction is made, that flaccid palsy and loss of the tendon reflexes are dependent upon the way in which the lesion is effected, and that the duration of the symptoms is in direct relation to the severity of the lesion and the position of the animal in the vertebrate scale.

It would appear from the experimental data just enumerated that a considerable discrepancy exists between the observations of different investigators, between the effects of trans-lesion in different animals as well as in those of the same species, and between the effects of trans-section even at the same level of the cord. "In the monkey," says Sherrington⁹, "spinal trans-section usually depresses the knee-jerk for a longer time than in the cat or dog. Occasionally in the monkey, after trans-section at the lower thoracic region, the jerk is not elicitable for a week or so. In the cat and dog it is elicitable in a quarter of an hour or less. Spinal trans-section above the lumbar enlargement renders the jerk, after the short period of depression, more brisk than normal."

In the high trans-sections through the cervical enlargement, a crossed adductor reflex is easily and early obtained, but it does not appear as if any material difference exists in the period of absence or depression of the jerk in high (cervical) or in low (dorsal) trans-sections.

Original Experiments.—With a view to investigate this subject more fully, I have carried out a number of experiments upon monkeys during the past few months, in conjunction with Dr. Purves Stewart.

But before describing the recent experiments, attention may be called to two experimental trans-sections which were made many years ago when working with Dr. Ferrier upon experimental lesions of the cerebellum.

A. (No. 2 in the table). The spinal cord of a Macaque monkey was severed completely at the level of the eighth dorsal root. Immediately after the operation the knee-jerks were capable of being elicited as before it. There were the usual paraplegic symptoms as regards motion and sensation. During the four months that the animal lived after the operation,

the knee-jerks gradually increased in association with considerable rigidity and contracture of the lower limbs.

B. (No. 3 in the table). The spinal cord was completely divided at the level of the sixth dorsal nerve. Both knee-jerks were readily elicited immediately after the operation, if anything, more markedly than before. These observations were made for twelve days after the operation.

The recent experiments are the following:

C. (No. 4 in the table). Rhesus; complete trans-section of the spinal cord at D iv; immediately after recovery from the chloroform the knee-jerks were present and as brisk as before the operation, the lower limbs were paralyzed and flaccid.

There was a crossed adductor jerk on both sides. There was no change in the state of the knee-jerks during the succeeding five days.

As this experiment merely confirmed the previous observations it was decided to modify the operations by performing a preliminary hemi-section, examining the jerks and then completing the trans-section.

D. (No. 5 of the table). Rhesus: The cord was exposed at the level of D vii, and a right hemi-section performed. On recovery from the anesthetic, both knee-jerks were tested and appeared equal and of normal range. The monkey was again anesthetized, and the section completed. On retesting, both knee-jerks were equal and perhaps even brisker than normal. One hour later both jerks were distinctly exaggerated and accompanied by a crossed adductor jerk. Total flaccid paraplegia.

E. (No. 6 of the table). Rhesus: The cord was exposed at the level of D iv, and the right side hemi-sected; on recovery both knee-jerks were brisk, with a crossed adductor jerk in each instance.

The section was then made total. On emerging from the anesthetic, both knee-jerks were exaggerated with crossed adductor jerks. An hour later the jerks were as before. There was no change in the jerks, or in the flaccid paraplegia during the next two days.

F. (No. 7 of the table). Sooty monkey. Cord exposed

and right side hemi-sected at level of D iii. With the return of the conjunctival reflex, the knee-jerks were obtained equally on both sides. Anesthesia was re-established and the section completed. In this case the knee-jerks were obtained with some difficulty up to half an hour after the operation. The right jerk was present with a crossed adductor jerk, the left elicited only with difficulty. Further observations were impossible as the monkey died during the night.

From these three experiments it is seen that a preliminary hemi-section did not affect the knee-jerk either upon the same or opposite side, at all events during the brief period during which the examination was made. The knee-jerks, however, appeared to be less easily obtained, the higher the level of the trans-section. A further experiment was therefore carried out.

G. (No. 8 of the table). Rhesus. Intradural trans-section at the level of D i. Immediately after the operation both jerks were present, but diminished in intensity, and failed to be elicited a few minutes later. But both crossed adductor jerks and the superficial anal reflex were obtained. Ten hours later the knee-jerks were still absent, and they were not obtained up to the death of the animal three days later, though the crossed adductor jerks were elicited throughout.

H. (No. 9 of the table). Sooty monkey. In this case the spinal cord was tightly ligatured at the level of C viii. This was done with a view to imitate, as far as possible, what occurs in fracture dislocation in the human subject. Both knee-jerks were only feebly elicited on recovery from the anesthetic; but the following reflex movements were well seen, a crossed adductor jerk, and the superficial anal reflex. Half an hour later the knee-jerks could not be elicited, nor were they obtained during the next seven hours.

As it seemed possible that the method of severing the spinal cord—by knife or by ligature—might have some influence over the resultant phenomena, a further experiment was done to control the previous trans-sections in the lower and mid-dorsal regions.

I. (No. 1 of the table). Rhesus. A ligature was tied tightly round the cord at D ix. The knee-jerks immediately

after the operation were brisk with the presence of a crossed adductor jerk. Half an hour later, on retesting, the jerks were only elicited with difficulty, and it seemed as if exhaustion of the jerks was easily produced, for the reason that the first tap upon the tendon resulted in a fair jerk, but subsequent taps failed to show any effect. The adductor jerks and the superficial anal reflex were brisk. Ten hours later the same phenomena were noted; apparently ready exhaustion of the jerks on repetitions of stimuli. On the two days following the operation, the jerks were brisk.

One main conclusion is obvious from these experiments, viz., that the presence or absence of the knee-jerk is influenced by the level of the trans-section, and, perhaps of a subsidiary nature, that the method of severing the cord would appear to have some influence in determining temporarily the state of the jerks.

For the closer study of this question, I have separated in the accompanying table, the knee-jerks and the other reflex phenomena; as it would appear to be important to consider

EXPERIMENTAL TRANS-SECTION IN MONKEYS.

NO.	ANIMAL	LEVEL	METHOD	KNEE-JERKS	OTHER REFLEXES	DURATION
1	Rhesus	D ix	ligature	brisk after temporary depression	x add. jerk, superficial anal	4 days
2	Rhesus	D viii	knife	present and increasing		4 months
3	Rhesus	D vi	knife	present and brisk		12 days
4	Rhesus	D vii	hemisection section	present and brisk	x add. jerk	few hours
5	Rhesus	D iv	knife	present and brisk	x add. jerk	5 days
6	Rhesus	D iv	hemisection section	present and brisk	x add. jerk	2 days
7	Sooty	D iii	hemisection section	only with difficulty, R. L.	x add. jerk	few hours
8	Rhesus	D i	knife	not obtained	x add. jerk, superficial anal.	3 days
9	Sooty	C viii	ligature	not obtained	x add. jerk, superficial anal.	7 hours

separately true reflex movements and those which may be regarded as depending upon neuro-muscular tonus.

As soon as the monkeys emerge from the chloroform anaesthesia, if the lesion has been made at or below the level of the fourth dorsal segment, the knee-jerks are elicited, and may even be more vigorous than previously, a crossed adductor jerk is always readily obtained, as well as frequently on the same side, and pricking the perineum leads to protrusion and contraction of the sphincter ani. Micturition, which may at first have been temporarily in abeyance, occurs at definite intervals and defecation is regular. Patulousness of the anus is rare, and if it occurs, is of quite temporary duration (Sherrington). The limbs are in a state of flaccid palsy; as time goes on rigidity and contracture ensue and the knee-jerks become decidedly exaggerated. Sensation is abolished in the parts below the level of the lesion.

In the higher trans-sections, those made about the level of the second and third dorsal segment, some difficulty was experienced temporarily in eliciting the jerks. In Exp. 7 the right jerk was more readily obtained than the left; and both seemed to be easily exhausted, that is to say, frequent and repeated attempts to elicit the jerks, failed to evoke any response after the first or second tap. But from both patellar tendons a crossed adductor jerk was easily brought about. Defective knee-jerks were present up to half an hour after the operation.

In still higher cases—trans-section at the level of the first dorsal and eighth cervical segments—the knee-jerks could temporarily be obtained with difficulty, but in both instances they entirely failed within the first quarter or half an hour after the trans-section.

This is readily explained on the hypothesis that the spinal segments retain some degree of autonomy after severance from their connections, however high the lesion may be. This also accounts for what is now generally admitted, that the knee-jerks may be present for one or two minutes after decapitation.

A brief comparison may now be made with the clinical picture presented by a case of fracture dislocation at the level of the eighth cervical segment. In addition to the complete

motor and sensory paralysis of the lower limbs, the knee-jerks are not obtained; the bladder requires to be evacuated by the catheter; the anus is patulous and does not grip the examining finger, and there may possibly be incontinence of feces; there is usually marked priapism. On the other hand, a plantar reflex of the extensor type will be obtained on stroking the sole of the foot, and the superficial anal reflex will be present on pricking the skin of the perineum.

The paraplegia is of the flaccid type, and if the trans-section is complete, remains so, and the knee-jerks do not return.

Various theories have been advanced to explain the condition of flaccid paralysis and loss of the knee-jerks in complete trans-sections in man.

Many of them, though supported by considerable pathological evidence, may be at once dismissed. For example, all those cases have been eliminated* in which there was obvious interference with the reflex arc in its intra-spinal course, as well as those which showed associated degeneration of the anterior roots and of the peripheral nerves. No reference either is made to those cases, and there are several on record, in which a descending myelitis, or a coexistent lumbar myelitis was present. In this way the number of cases presenting the salient features of flaccid palsy and loss of the knee-jerks is reduced to those of sudden traumatic lesion (usually fracture dislocation of the vertebral bodies) in or about the region of the cervical enlargement.

The most commonly accepted explanation is the Bastian-Jackson¹⁰ view, which ascribes the loss of the reflexes to the cutting off of cerebral and cerebellar influence. The acceptance of this explanation depends upon the completeness of the trans-section and the permanent abolition of the tendon jerks. As regards the latter point, I believe the evidence is conclusive, viz., that in no case in which the cord has been completely severed has any return of the tendon jerks been observed. This statement is based upon the writings of Bruns¹¹, who has analyzed most of the recorded instances of this condition. But evidence will be brought forward pres-

*An extensive bibliography and criticism of the recorded cases will be found in *Neurol. Centralbl.* 1897, p. 72.

ently to show that abolition of the knee-jerks even for prolonged periods, may be occasioned by anatomically incomplete trans-sections, proved post-mortem to have been such.

Bastian's explanation further implies that the knee-jerk is directly dependent upon the function of the cerebellum in maintaining the muscle tonus, acting upon and through the spinal centers. Removal of the cerebellum should therefore theoretically on this view produce hypotonia, and consequently loss or impairment of the knee-jerks. Now atonia has been stated by Luciani¹² to be one of the phenomena following cerebellar extirpation, though he does not seem to have tested the knee-jerks in this connection. If the state of the knee-jerk indicates the degree of neuro-muscular tone, as is generally admitted to be the case, then its exaggeration, after cerebellar extirpation, as shown by Ferrier and myself¹³, as well as by Risien Russell¹⁴, would prove not atonia, but a state of hypertonicity, following complete removal of this organ.

It is difficult also to believe that if the cutting off of the combined cerebral and cerebellar influence abolishes permanently the tendon jerks in man, why their abolition is not more constantly observed after cross section of the spinal cord in the higher vertebrate species such as the monkey. But the evidence from experiments already quoted shows that this is not a necessary, nor indeed a common, result; and that it depends largely upon the level at which the section is performed.

All observers are agreed that even in those animals in which the knee-jerks are temporarily abolished or weakened, their reappearance is merely a question of time, but there are many instances, even in apes, in which no interference with the reflex activity has been observed, even temporarily, after spinal trans-section.

Incomplete Lesions.—Some valuable information upon the loss of the knee-jerks may be obtained from a study of partial trans-lesion of the spinal cord following fracture dislocation, that is to say, cases in which the symptoms indicate a complete physiological trans-section for a period, but which are shown by subsequent post-mortem examination to have been anatomically incompletely divided. Instances of partial

trans-lesion with loss of the knee-jerks have been recorded by Thorburn¹⁵ and others, but without sufficiently definite pathological data. I propose first to refer to a case already recorded by Dr. Purves Stewart¹⁶, examined pathologically in detail. Briefly the history of this case is as follows:

A woman, *act. 28*, fell out of a window, a distance of about twenty-five feet, and dislocated the body of the fifth cervical vertebra. This was followed by complete flaccid paraplegia and anesthesia below the level of the third rib, and partial paralysis of the upper limbs. The breathing was entirely diaphragmatic. The knee-jerks were absent, as also were the abdominal and epigastric reflexes. The plantar reflex was present and of the extensor type. There was complete retention of urine. The superficial anal reflex was present on pricking the skin of the perineum; but the deep anal sphincter was paralyzed; the anus "yawned" after withdrawal of the examining finger. The leg muscles responded readily to faradic excitation.

Up to forty days after the injury, the symptoms indicated a complete physiological trans-section of the spinal cord, but at this date, the return of the knee-jerks, at first slightly, and then with greater intensity, seemed to point to an anatomically incomplete lesion. With the return of the knee-jerks, there ensued some contracture and rigidity, but without any voluntary power over the lower limbs. The patient died sixty-eight days after the accident.

The examination showed that the cord, at the seat of compression, was reduced to a mere ribbon, measuring about 1 mm. thick; while microscopically, a thin strand of degenerated white fibers, situated peripherally, joined the proximal and the distal segments. It was obviously not a complete spinal trans-section.

The second case, not previously recorded, was under the care of my colleague, Dr. Howard Tooth, in the Queen Square Hospital, and I am indebted to him for permission to publish it.

The patient, G. M., while working on a ladder, lost his balance and fell from a height of twelve feet, striking his back

and shoulders; there resulted a paraplegia, and anesthesia from the level of the umbilicus on the right side, and from a point two inches below on the left side. There was retention of urine requiring catheterization. The knee-jerks were not obtained, the abdominal skin reflexes were also absent, but the plantar reflex was present and of the extensor type. There was tenderness on pressure over the sixth, seventh and eighth dorsal spines. These observations were made twelve days after the injury on his admission to the Hospital for the Paralyzed and Epileptic; and the symptoms persisted, without any material change, for four months, when the knee-jerks were noted to have returned. Three months later (*i.e.*, seven months after the accident) the legs had lost their flaccidity and showed rigid extension and occasional jumping movements. There was also some voluntary power over the toes and of rotation at the hips. The knee-jerks were present and the plantars were of the extensor type. Four months later—a year after the accident—there was no return of sensation, but the patient was aware when his legs were moved. He died sixteen months after the accident.

Dr. Collier, who examined the cord after death, reports as follows: There was a fracture dislocation of the body of the eighth dorsal vertebra. Between the eleventh and twelfth dorsal roots there was a depression in the cord about 1 cm. wide, the cord being here reduced to a mere ribbon. Microscopically there was no portion of the lesion free from medullated nerve fibers, undergoing degeneration. The proximity of the ends of some of the fibers suggests that there might have been continuity, though no continuous axis cylinders could be detected. The spinal segments showed absolutely no change to the Nissl reagents, except in immediate relation to the site of lesion. The usual ascending and descending degenerations were noted.

The points of special significance illustrated by these two cases, well examined both clinically and microscopically, are, in relation to the matter attracting our present attention, the following:

1. The symptoms, as regards motion, sensation and the

type of palsy, are indicative of a complete physiological trans-section of the spinal cord, above the lumbar enlargement.

2. The immediate and prolonged loss of the knee-jerks in the first case for forty days, in the second for four months, with retention of plantar reflexes of the extensor type.

3. With the return of the knee-jerks a tendency to muscular rigidity, contracture and spasm though not necessarily of any voluntary power.

4. The incompleteness of the anatomical lesion with pronounced descending degenerations in the crossed pyramidal and antero-lateral descending tracts.

5. And, finally, the absolutely healthy appearance of the cells of the lumbar enlargement according to the Nissl method.

The Plantar and Skin Reflexes.—This is a convenient place to refer briefly to the condition of some other reflexes, viz., the superficial skin, and the plantar reflexes. The state of the skin reflexes after trans-section of the spinal cord is variable. In some, they are abolished, in others retained, and at times they are increased. As even in healthy individuals the skin reflexes are an uncertain quantity, little assistance is rendered by them in this connection. Very different, however, are the lessons to be learned from an examination of the plantar reflex. This reflex is present in trans-sections above the lumbar enlargement in man. In the cases recorded prior to the description by Babinski of the flexor and extensor types, the general statement was made that a plantar reaction was present; but in those recorded subsequent to that date, the statement is definitely made that the plantar reflex was of the extensor type. In other words, trans-section of the spinal cord is not followed by abolition of so pure a reflex as is the plantar reaction. From the experiments, which I have recorded in this paper, the following other reflexes may be added to the list of those which are not abolished by trans-section. The crossed adductor, and the superficial anal or perineal reflex. This latter reflex has been found present also in trans-lesion in man.

CONCLUSIONS.

The conclusions which it is possible to draw from a consideration of the foregoing experimental and clinical observations may be briefly stated as follows:

1. The condition of the knee-jerks after experimental trans-section of the spinal cord in monkeys is not constant: the higher the level of the trans-section, the greater the likelihood of the knee-jerks being temporarily diminished or abolished. In these observations there is found a confirmation of the experimental data given by Rosenthal and Mendelsohn and by Gad and Flatau in dogs.

2. No such difference according to level is found in trans-sections of the human spinal cord; all complete trans-sections above the lumbar enlargement lead to abolition of the knee-jerks, most probably of a permanent character.

But temporary abolition of the knee-jerks, sometimes for a prolonged period, may follow incomplete anatomical trans-section, although the other coexistent phenomena point to a complete physiological lesion.

3. In man, as experimentally in monkeys, although the knee-jerks may be abolished, some true reflex actions are permanently maintained; such are the plantar and the superficial anal reflexes; and, notably in monkeys, the crossed adductor jerks.

4. Accepting the view that the state of the knee-jerk indicates the degree of the neuro-muscular tone, if some other muscular action dependent upon "tone" is found to be abolished in spinal trans-section as well as the knee-jerks, it may legitimately be argued that neuro-muscular tonus is impaired or abolished in physiological trans-section; such other atonic paralysis is, I submit, to be found in the "yawning" of the anus, which has been described.

5. Therefore, we may conclude that in spinal trans-section in man, and in high trans-sections in monkeys, actions dependent upon neuro-muscular tone are permanently or temporarily abolished; but that true reflex movements are not impaired.

6. The variation which exists in the phenomena following

lesion at different spinal levels in dogs and monkeys, the transitory effects of such lesions as regards the knee-jerks, as well as the temporary abolition of the knee-jerks in incomplete lesions in man, would preclude the general application of Bastian's theory; for there is nothing yet recorded to negative the view that the mechanism which produces loss of the knee-jerks in man, or their temporary abolition in the lower animals, is not to be found in the spinal cord itself.

7 The explanation of the discrepancy which exists between the results of trans-section in laboratory animals and man may be explained by the greater autonomy of the spinal segments in maintaining neuro-muscular tonus as we descend the vertebrate scale.

BIBLIOGRAPHY.

- ¹Fraenkel. *JOURNAL OF NERVOUS AND MENTAL DISEASE.* 1897.
- ²Fraenkel & Collins. *JOURNAL OF NERVOUS AND MENTAL DISEASE.* 1900, p. 375.
- ³Walton. *JOURNAL OF NERVOUS AND MENTAL DISEASE.* 1901.
- ⁴Furbringer. *Centralbl. f. med. Wissenschaft,* 1875. No. 54.
- ⁵Rosenthal & Mendelsohn. (1) *Monatsschr. d. königl. Akademie zu Berlin,* Feb. 1873. (2) *Königl. Preuss. Akademie, Berlin,* 1882, 1883, 1885. (3) *Neurol. Centralbl.* 1897, p. 978.
- ⁶Gad & Flatau. *Neurol. Centralbl.* 1896, p. 147.
- ⁷Sherrington. *Phil. Trans. Roy. Soc. Lond.* 1898, p. 136.
- ⁸Margulies. *Wien. klin. Rundschau.* 1899, p. 925.
- ⁹Sherrington. *Schaefer's "Text Book of Physiology,"* p. 873, vol. 2.
- ¹⁰Hughlings Jackson. *Med. Examiner.* 1877 and 1878, and numerous subsequent communications.
- ¹¹Bastian. *Med. Chirurg. Soc. Trans.* 1890, p. 151.
- ¹²Bruns. *Neurol. Centralbl.* 1897, p. 72.
- ¹³Luciani. *Il Cerveletto.* 1891.
- ¹⁴Ferrier & Turner. *Phil. Trans. Roy. Soc. London.* 1894.
- ¹⁵Risien Russell. *Phil. Trans. Roy. Soc. London.* 1894.
- ¹⁶Thorburn. *Brain.* 1889.
- ¹⁷P. Stewart. *Brain.* vol. 23, p. 139.

THE LOCALIZATION OF THE REFLEX MECHANISM.*

BY G. L. WALTON, M.D.,
OF BOSTON.

The study of the reflexes in complete lesion of the cord is of interest both on account of its value in diagnosis and pathology, and on account of its bearing upon the localization of the reflex mechanism. The present tendency in favor of cerebral reflex centers is largely due to Bastian's observation that the knee-jerk is abolished by complete transverse lesion, an observation which may have to be modified by the experiences of Brissaud, Raymond and Cestan, which seem to indicate that gradual destruction of the cord, even though complete, may give rise to spastic paralysis. But acceptance of cerebral reflex centers does not quite in itself solve the problem. In fact, the reflex conditions found in disease are too varied to be explained on the basis of single centers, whether cerebral or spinal. It seems probable that we shall be forced to assume, with Grasset, that there are in man at least three regions, namely, spinal, basilar and cortical, all of which are possessed of centers for tonicity and reflex, all normally in play in the healthy adult, the higher supplementing and controlling the lower more and more as the animal scale is ascended, though not absolutely replacing them as claimed by Crocq. If this is true, the lower centers in the healthy human adult may remain comparatively, or quite, quiescent, while the higher are in the full exercise of their sway; but when the control of the higher centers is interrupted by disease, it may well be that the lower centers resume their activity, and with increasing force, through lack of cerebral influence.

An analogous condition is found in the vaso-motor control. If the lumbar region is cut off from the bulbar vaso-motor centers the blood vessels of the lower extremities dilate, and the superficial temperature is raised. In the course

*Read in connection with the paper of Dr. Turner at the meeting of the New York Neurological Society, April 8, 1902.

of time the vessels resume their tone, and the normal temperature is restored. Physiologists explain this phenomenon, when produced experimentally in lower animals, by supposing that rudimentary, or at least inactive, vaso-motor centers in the cord, take up their function only when the bulbar centers become ineffective, and there is no reason to doubt that a similar, though perhaps more complicated, process takes place in the human being.

Among the apparently contradictory propositions whose reconciliation is impossible on the supposition of single centers, and difficult even with the aid of multiple centers, may be found the following, some of which are established, while others require further verification.

(1) In cerebral hemorrhage the paralysis may be at first flaccid, and the reflexes abolished (Dana and others).

(2) If the connection between the brain and the lumbar cord is permanently severed, the knee-jerk does not return (Bastian and others), but the plantar reflex may return (Fränkel).

(3) If the destruction of the upper cord is gradual, the knee-jerk does not disappear but becomes exaggerated (Brisaud).

(4) If pyramidal transmission is reestablished, the knee-jerk returns, and under certain circumstances is exaggerated; the cutaneous reflexes (unless the Babinski is deemed a cutaneous reflex) are diminished if the patient is an adult, preserved, if a young person.

(5) The Babinski reflex may appear at the onset of high lesion during the period of flaccidity and absence of all other reflexes (Stewart and Turner, Walton and Paul).

(6) In earliest infancy, even in infants prematurely born, extensive reflex movements of the feet and toes are present. (The fact that some observers find in these movements a Babinski reflex, and that others find them indeterminate, with perhaps a predominance of extension and separation of the toes, adds another complication to the problem.)

(7) These reflex movements of infancy are gradually replaced, probably after two years (Morse) by the constant flexor reflex of adult life.

(8) The cremasteric reflex is established in early infancy, (though its systematic test at this age is rendered difficult by the mechanical conditions, particularly the non-emergence of the testicle). This reflex becomes very active in early life, and is later replaced by, or modified to, the normal adult reflex.

(9) The knee-jerk is very active in infancy. (In infants I have recently examined with reference to this discussion, through the kindness of Drs. Richardson, Rotch and Green, I have found that the knee-jerk is difficult or impossible to elicit in prematurely born infants, and sometimes difficult to elicit at full term. I have generally been able to obtain it, however, in the first few days of life, and have found it steadily increasing in activity, and becoming very active, at, for example, eighteen months. This reflex is best obtained in infants by holding the thigh at right angles with the trunk and supporting the lower leg in the hand, at right angles with the thigh. The tap is best made very near the patella with a small rubber percussion hammer.)

Can these, and other, observations be reconciled with the supposition of single centers, either in the cord or in the brain? No. If, for example, a center for the knee-jerk exists in the cord alone, why is the knee-jerk permanently lost when the cord is suddenly severed from the brain? Even the fact that it is temporarily lost under these circumstances is not readily explained on the assumption of simple spinal centers. The theory of shock, as maintained by Gowers, leaves much to be desired. The objection of Stewart and Turner is well taken, that such shock should also restrain the Babinski reflex, which appeared, for example, in their case of spinal fracture on the day of the accident, while the knee-jerk was abolished for two weeks.

If a center for tendon reflexes exists in the brain alone, why should the knee-jerk be always exaggerated when the connection with the cord is reestablished, even though that connection is a faulty one? Crocq's supposition that irritation of the pyramidal fibers under these circumstances adds to the reflex irritability of the basilar centers, is vague and

unsatisfactory. It would be strange if pyramidal fibers not sufficiently conductive to convey the least trace of voluntary motion, should readily transmit a heightened reflex stimulus. In the endeavor to explain the sluggish cutaneous reflexes sometimes coexisting with exaggerated tendon reflexes he assumes that the same pyramidal irritation which increases the activity of the basilar centers, inhibits that of the cortical centers, an assumption which shows the arbitrary nature of his theory.

With regard to the cutaneous reflexes, if it is true that the plantar reflex can appear when the cord is completely and permanently separated from the brain, there must be a center for this reflex in the cord, but there must be also a controlling center for this reflex in the brain, or it would not be even temporarily abolished by cerebral disease, or by fracture of the spine.

The attempt to explain the varied conditions is not altogether satisfactory even with the assistance of multiple centers, but it may proceed perhaps somewhat on these lines: Let us suppose with Crocq that in the human adult the controlling centers for cutaneous reflex and for muscular tonicity, have risen to the cortex, and that those for the knee-jerk have risen to the basilar region. But let us modify this theory by that of Grasset, that the lower centers, meantime, have not entirely resigned their function. May not a key to the most serious difficulty (namely, the varying predominance of the tendon and the cutaneous reflexes) be found in the following considerations? (a) Since the centers for the skin reflexes have reached a higher plane, their lowest centers (the spinal) will be less readily reeducated than those of the tendon reflexes, whose controlling centers have risen only to the basilar region. (b) Since the tendon reflexes require a certain degree and balance of muscular tonicity, they may sometimes, in default of this quality, be outstripped by the cutaneous reflexes, for which tonicity is a matter of secondary importance.

In infancy the reflex movements of the toes are of spinal origin, before the permanent normal relations with the brain are established. After these relations are established the higher centers preside over, and maintain, the normal cutan-

eous reflexes of adult life, the spinal centers meantime becoming inactive, more inactive, perhaps, than the spinal tendon reflex centers, since the cutaneous reflex mechanism has reached the higher plane. If the cerebral connection has been injured, with partial reëstablishment, the cutaneous reflexes disappear until the spinal centers resume their function, which they are able to do actively if the patient is young, but sluggishly, if at all, if he be an adult. The appearance of the Babinski in adult life under these circumstances must be regarded, not as an exaggeration of the normal plantar reflex, but as a peculiar reflex, present only under pathological conditions. The fact that the Babinski appears more promptly than the exaggerated knee-jerk, and even sometimes when no knee-jerk is present, must be explained by the fact that no special adjustment of muscular tonicity is required for its production, and by the probability that its controlling center is spinal, and that its nature is so elementary that it is ready, like the active reflexes of the frog, to spring into existence immediately upon the withdrawal of cerebral control. The active reflex movements of the feet and toes at or before full term, and the persistence of the plantar reflex in case of permanent complete transverse lesion of the cord, may be similarly explained.

The same arguments can be followed with the knee-jerk up to a certain point: if the knee-jerk is temporarily lost, as in case of apoplexy or of spinal fracture, it is because the cerebral reflex center is rendered ineffective either by direct injury or by its functional separation from the lumbar region. In this event the knee-jerk returns, and becomes exaggerated, because the spinal centers now become active, and abnormally so, resuming, without inhibition, a function hitherto in abeyance.

The point of divergence of the knee-jerk from the plantar reflex appears first in case of sudden, complete severance of the cord. In this case the knee-jerk does not return, but it would appear that the plantar reflex may do so. The other point of divergence is in the newly-born, particularly the prematurely-born infant, in which the knee-jerk is faint or want-

ing, while the cutaneous reflex movements are active. These two peculiarities might lead to the inference that there are no centers in the cord for the knee-jerk, but they do not necessarily establish that proposition for this reason: in order to elicit the knee-jerk a certain degree of tendon stretching as well as a certain degree of muscular tonicity is essential, and even a certain balance of tonicity must exist between the flexor and extensor group of muscles, and even then the knee-jerk is aided by reinforcement (whether this procedure acts by increasing the muscular tonicity without altering its balance, or whether it acts by readjusting the control, for example, by withdrawing the inhibition of the highest cerebral centers). The permanent loss of knee-jerk in case of sudden severance of the cord may be due then, to the inability of the spinal centers for tonicity to resume their function before the muscles have lost their power to respond. That these conditions are sometimes reestablished, namely, when the destructive process has been a slow one, is indicated by Brissaud's case of spastic paralysis in which a long segment of the cord had been reduced to a mere fibrous thread by tubercular process. Similarly, in the prematurely-born infant, the spinal centers for the knee-jerk may be unable to act until the cerebral centers control the tonicity. Hypertonicity, rather than lack of tonicity, may prevent the reflex at this period, since the spinal centers for tonicity are doubtless in force at this stage, their activity being evidenced by the tendency to rigid flexion of the limbs in the premature infant. Or perhaps hypertonicity of the flexor groups, according to the law of Crocq, inhibits the tonicity of their antagonists, the extensors. The absence of knee-jerk in certain cases of long-standing infantile cerebral hemiplegia or diplegia with contracture is doubtless due to similar cause. However this may be, it is probable that the spinal centers preside over the tendon reflex of early life, but are gradually overshadowed by cerebral control.

If it is true that complete transverse lesion, when of gradual onset, may produce spastic condition with increased knee-jerk, we must assume that the spinal centers of tonicity can

gradually become re-educated during the time that the cerebral centers of tonicity are losing control.

The selection of certain regions in the brain as a basis for the line of analysis suggested in this somewhat sketchy discussion, is not intended to be final. We are hardly in position at present to attempt the exact localization of the neurones through which these stimuli pass. But whether, for example, the cerebellum plays the important part assigned it by Bastian, or whether the red nucleus and its descending fibers occupy a prominent place, as the studies of Collier, Buzzard, and others would indicate, it falls in line with the modern interpretation of the various cerebral functions to assume that the reflex mechanism has multiple relations. In fact, a simple change of base on the part of these centers from the cord to the brain, would imply that a mechanism only little more intricate than that which suffices for the elementary functions of the frog, is able to control the complicated reflexes of the human organism.

THE ACOUSTIC TRACT.

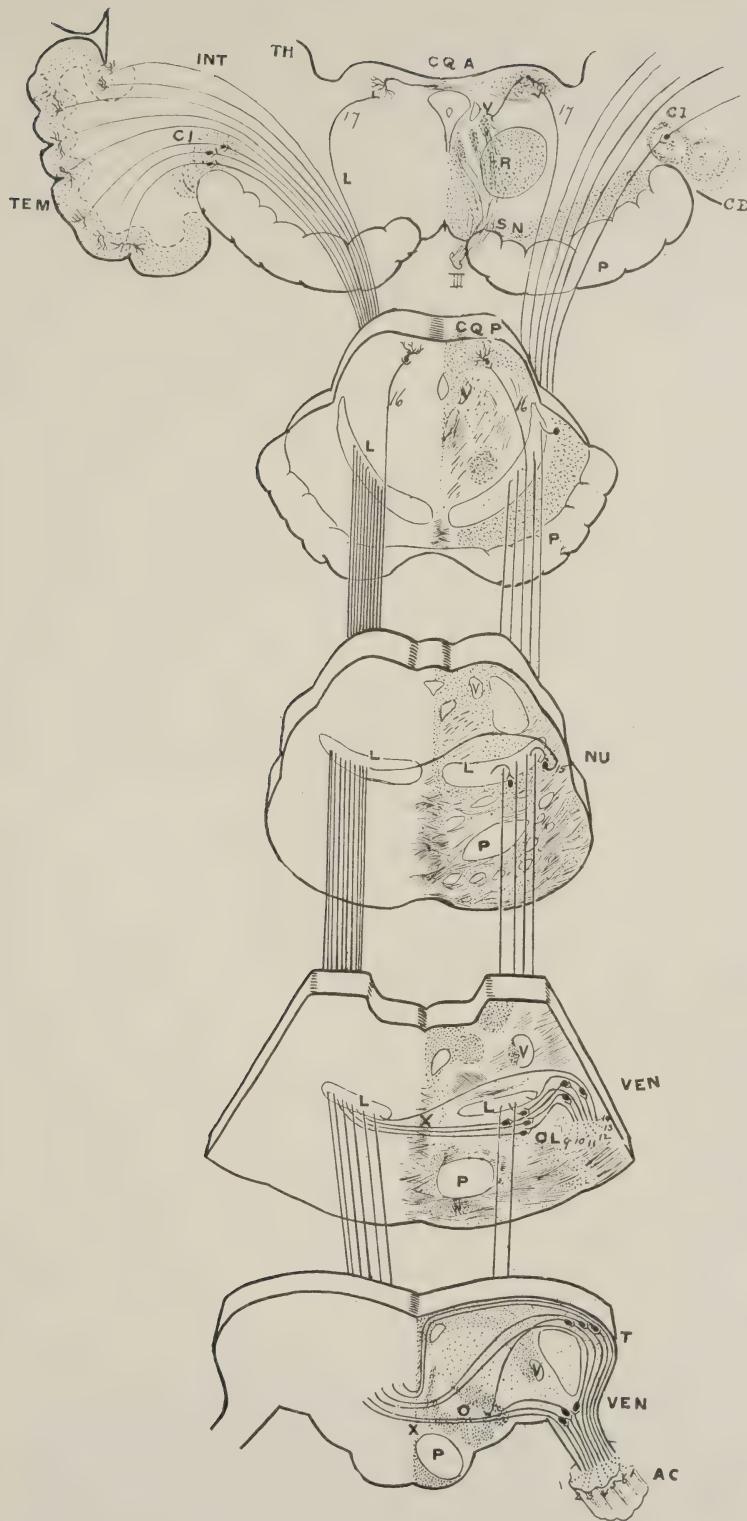
By M. ALLEN STARR, M.D., L.L.D.

Diagram of the Auditory Nerve—Cochlear division.

The central connections of the cochlear division of the auditory nerve, the portion of the eighth nerve concerned in true auditory impressions, are shown in the diagram.

The neurone-bodies of which these fibers are the axones lie in the spiral canal of the cochlear.

AC, the acoustic nerve fibers, enter the side of the medulla in a large trunk. We can distinguish fourteen different sets of fibers. Many of these fibers (1-8) penetrate the medulla opposite the entrance of the nerve. Others (9-14) turn upward on entering, and penetrate the pons at a little higher level. These various fibers pass to different destinations; 1 crosses through the olive, turns upward in the interolivary tract and enters the opposite lemniscus, and passes up in it; 2 terminates about a neurone-body in the ventral nucleus (VEN). From this body an axone arises which crosses to the opposite side and turns upward in the lemniscus; 3 terminates about a neurone-body in the ventral nucleus (VEN). From this body an axone arises which passes upward in the lemniscus of the same side; 4 terminates about a nerve-body in the ventral nucleus (VEN). From this body an axone arises which passes about the outer side of the medulla through the tuberculum acusticum (T) and thence through the *formatio reticularis* of the medulla to the raphé, where it crosses to the opposite side and turns upward in the lemniscus; 5 terminates about a neurone-body in the dorsal nucleus or tuberculum acusticum (T). From this body an axone passes through the *formatio reticularis* into the lemniscus of the same side and turns upward in it; 6 terminates about a neurone-body in the dorsal nucleus (T). From this body an axone passes through the *formatio reticularis*, crosses in the raphé and enters the lemniscus of the opposite side, turning upward in it; 7 terminates about a neurone-body in the dorsal nucleus T. From this body an axone passes across the floor of the fourth



ventricle in the *striæ acusticæ* to the raphé, turns downward in it, crosses to the other side, enters the lemniscus and turns upward in it; 8 passes through the dorsal nucleus into the *striæ acusticæ* and accompanies 7 in its course.

The ventral nucleus of the auditory nerve consists of a long column of cells which extend upward into the pons. Hence in a section through the lower half of the pons the ventral nucleus is still visible (VEN) and the fibers ascending from the auditory nerve trunk to terminate in or to pass through this nucleus (fibers 9-14) are easily traced. The course and ending of these fibers is as follows:

No. 9 turns inward and ends about a neurone-body lying in the upper olfactory nucleus (OL). From this body an axone arises which crosses the median line in the trapezium, enters and ascends in the opposite lemniscus; 10 terminates about the neurone-body in the ventral nucleus, whence a new axone arises and passes to the olfactory nucleus, terminating about a neurone-body there. From this neurone-body an axone arises which joins 9 and pursues the same course; 11 passes through the ventral nucleus and ends about a neurone-body in the mass of gray matter lying adjacent to but ventral of the lemniscus, and dorsal of the olfactory nucleus. This is the trapezoid nucleus. From its neurone-bodies axones arise, some of which enter the lemniscus of the same side, but many of which cross the median line to enter the lemniscus of the opposite side and ascend in it; 12 terminates in the ventral nucleus about a neurone-body. This body sends its axone to the collection of neurones lying within the deep transverse fibers of the pons, the trapezoid body. These neurone-bodies in turn send their axones into the lemniscus of the same and of the opposite side; 13 terminates about a neurone-body in the ventral nucleus. The body sends an axone directly into the lemniscus of the same side; 14 passes through the ventral nucleus and crosses in the trapezoid from the opposite side, where it turns upward in the lemniscus.

It is thus evident that all the fibers of the acoustic nerve, so far as its cochlear division is concerned, transmit their impulses into the lemniscus of the same or of the opposite side.

The trapezoid fibers may be termed the acoustic decussation or chiasm, and, as in the optic chiasm, the majority of the fibers cross to the opposite side (X). The termination of fibers ascending in the lemniscus is very complex. (a) Some fibers terminate about the cells of the nucleus lemnisci in the pons (Nu) which nucleus in turn sends axones to the corpora quadrigemina of the same and of the opposite side (15). (b) Some fibers terminate about the large quadripolar cells of the posterior corpus quadrigeminum (16) (CQP). (c) Some fibers terminate about the large cells of the first layer of cells in the anterior corpus quadrigeminum (17) (CQA). (d) Many fibers terminate about neurone-bodies in the corpus geniculatum internum (CI), whence new axones arise which pass to the cortex of the temporal lobe (TEM). (e) Some fibers pass directly through the internal capsule from the lemniscus to the temporal lobe.

Since each of the nuclei in which lemniscus fibers terminate is connected with motor mechanisms as well as with the cortex of the temporal lobe, it is evident that the auditory impulses can awaken numerous reflex and automatic acts as well as conscious sensations of hearing. Hence the act of turning eyes and head or assuming postures of strained listening and other automatic acts are made possible by these fibers.

The diagram shows that the connection of each ear is with both sides of the brain, but that the crossed connection is more extensive than that with the same side. The diagram does not show the existence of a corresponding set of neurones whose axones pass in the direction the reverse of those shown. Degenerative changes after experimental injuries prove their existence. Hence a second diagram might be drawn showing axones of exactly complementary course. These are omitted from this diagram for the sake of clearness.

REPORT OF A CASE OF TUMOR OF THE FRONTAL
LOBE.*

By
F. X. DERCUM, M.D.,
AND
W. W. KEEN, M.D.

Mr. J. W., age 23, single, retail business.

Family History—Father died at fifty-two of a stroke. Mother died, forty-two years of age, after an operation for fibroid tumor. Patient has a younger and an older brother, both of whom are well. Has one adult sister who is well. One brother, at two years of age, died of measles, one sister at eleven, died of rheumatism, and another sister, at nine years of age, died of typhoid fever. Patient is the third child.

Personal History—When he was a little over a year old, he had a bad fall, falling from his high-chair and striking the back of his head. The patient's sister thinks that he was unconscious for several hours. Subsequently he seemed to be quite well. Went to school and made reasonably good progress. Had typhoid fever very badly when he was about twelve years of age.

Three years ago, while reading, he suddenly told his sister that he could not speak without great effort. Subsequently he began at intervals to suffer terribly from headaches, and gave up studying law. He "could not memorize anything," and he had several attacks during which he was unable to speak, but did not lose consciousness. One Sunday, shortly after he went down-stairs, his sister heard the servants scream. She found him upon the floor unconscious, working his right arm. The attack only lasted a few "moments." His right hand afterwards was swollen. Attacks similar to this have recurred at intervals of several weeks. They are more severe at present than at first. Other parts of the body are convulsed during the attacks, but not as much as the right arm. He always falls over on the right side. The patient can tell when an attack is coming on; first has a dazed sort of feeling and cannot say what he wants to say. The dazed condition lasts about two minutes, after which he falls to the right, and the right arm is convulsed. His sister has never noticed the left arm working. At times the attacks have been prevented

*Read before the Philadelphia Neurological Society, October 22, 1901.

by taking medicine internally and also, the sister states, by having his attention drawn to other things, and by going to bed and having his right hand and arm bathed with hot water. Sister states that he frequently loses power in his right arm, so that he cannot hold anything. The arm often hangs limp and useless for days at a time. At one time it was limp and weak for a period of ten days. After a period of great weakness in the arm, he has thus far always regained power in it after a time.

The patient has had several attacks of agraphia. He is engaged with his brother in a retail business, and has at times been unable to write. Has at times found himself unable to write down the order of a customer. Has been obliged to call another clerk. Occasionally has been unable to write for hours; at other times for a day or two at a time. During these attacks he is entirely unable to form the letters (does not remember how to make them). The attacks of agraphia have occurred without aphasia. He has had at times a marked difficulty in expressing himself in speaking, but never a persistent aphasic attack.

Physical Examination—Station normal. Gait normal. Slight intention tremor. Grip, right hand 84; left hand 65. Knee-jerks normal. Tongue protruded normally in median line. No sensory losses.

Has no aphasia at present. No word blindness; no word deafness. However, he does not read aloud quite as well as formerly, and his handwriting has also slightly deteriorated as has also his spelling. Astereognosis is not present.

An examination of the eyegrounds by Dr. de Schweinitz revealed a double optic neuritis in a comparatively early stage. Pupils were normal and equal. Rotation of the eyes was normal and there was no paresis of any ocular muscle, nor was there any history of diplopia. The form fields also were normal.

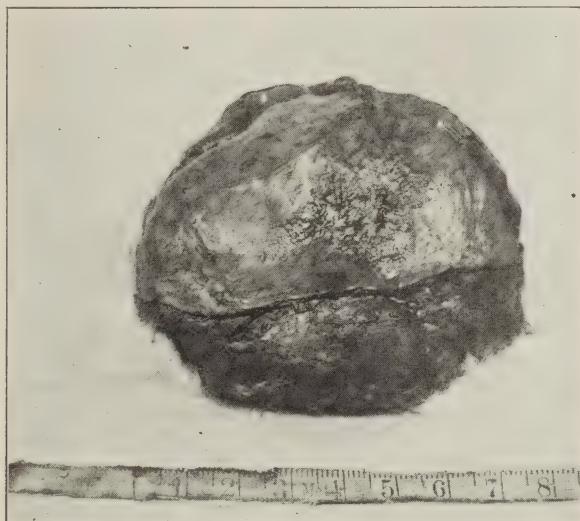
The case was of special interest from the standpoint of localization. The persistent headache and optic neuritis permitted of course of no other interpretation than that of gross intracranial disease. The focal epilepsy, that is the epileptiform attacks with the convulsive movements of the right arm and paralysis of the same member, pointed, of course, to the arm center of the left hemisphere. It is especially interesting that when the patient was tested for astereognosis, that astereognosis was absent. The absence of this symptom pointed to a lesion that did not involve the posterior-superior parietal lobule. On the other hand the attacks of agraphia were es-

pecially significant and pointed to the foot of the second convolution, directly in front of the arm center.

An operation was at once advised, and Dr. Keen trephined over the left arm center and subsequently enlarged the opening anteriorly. A large tumor was found springing from the dura and pressing especially upon the arm center, the second frontal convolution and also adjacent regions. The steps of the operation are described by Dr. Keen.

REMARKS BY DR. KEEN.

Operation, May 4th.—I first marked on the left side the position of the fissure of Rolando, and then made an osteoplastic flap, which was 15 cm. long, barely to the median line,



Tumor of the frontal lobe, measuring $7\frac{1}{2}$ cm., removed at operation.

and 2 cm. to the left of it, with two arms extending into the temporal region, each of them 10 cm. long. The arm center was just at about the mid-point of this large flap. Chiseling the bone disclosed the fact that it was exceedingly vascular, especially along the anterior limit. This led me to believe that probably the tumor was cortical in its origin. As soon as the flap was turned down, not only was the dura very tense and discolored, and the anterior branch of the middle meningeal very large and prominent, but at the anterior margin of the entire opening, it was evident that there was a tumor attached, involving the dura mater. A small incision disclosed

the tumor immediately under the dura, and that the dura was very adherent to it, forming part and parcel of the tumor. I enlarged the opening anteriorly nearly 3 cm. and superiorly till I reached the sagittal suture. Only by so large an opening was I able to get well beyond the limits of the tumor anteriorly. Toward the middle line the tumor reached all the way up to the falx. I traced the dura forward till I found it free from the tumor, and then was able, following the line of freedom from adhesions, to cut through the dura over a large area irregularly circular and about 5 cm. in diameter. At one point I cut through the enlarged anterior branch of the middle meningeal artery, which was seized with hemostatic forceps and then ligated. I was able then to insert my finger at the margin of the tumor and thereby to enucleate it. It was very evident from the appearance of the white substance of the brain and the adjacent cortex that at the anterior and outer edges there was no very alarming hemorrhage, but toward the middle line the hemorrhage was furious. I packed some iodoform gauze tightly in and clamped part of the dura; later in removing the clamp I found that the very large veins, which in this case were far larger than usual, were all torn, and also that the wall of the superior longitudinal sinus which had been involved in the tumor was lacerated. Meantime, by clamps, packing and hot water, I was able practically to control the hemorrhage.

Meantime the patient had had a quart of salt solution by hypodermoclysis, two enemata of coffee and whiskey, 1-10 of strychnin and 1-100 of atropin, both hypodermatically. Oxygen was administered during part of the time, in order to oxygenate the blood, which his feeble respiration threatened to imperil unduly. I had applied Horsley's wax to the bone where it bled so freely, and this controlled the very abundant hemorrhage from this source. This hemorrhage quite justified the conclusion which we reached of an underlying sarcoma; even the hemorrhage from the scalp was much greater than usual. I then closed the opening, leaving 6 to 8 hemostatic forceps *in situ* and covering them with the dressing. The patient was put to bed in a very precarious condition from shock and hemorrhage.

The tumor was given to Dr. Spiller who reports as follows: "The tumor is a spindle-cell sarcoma. It measures in its greatest diameter 7 1-2 cm. and weighs 148 grammes."

REPORT OF A CASE OF TUMOR OF THE FRONTAL LOBE, WITH OPERATION.*

By W. W. KEEN, M.D.

Mrs. John T. F., Williamsport, Pa., *act. 43*, was first seen in consultation with Drs. H. G. McCormick and Armstrong of Lock Haven, Pa., at midnight, April 27-28.

She was married at 35; had never been pregnant. She was said to have suffered with malaria some time after her marriage, but since then has had very fair health.

Eighteen months ago she was said, by an irregular practitioner who had her under his care, to be suffering from nervous prostration, of which headache was a prominent symptom. She was in bed for three months. In the spring of 1900 she spent some months at Atlantic City with what was stated to be uric acid and uterine trouble. All this time her headache was one of the most prominent features of her case.

She was first seen by Dr. McCormick in February, 1901, at which time her symptoms were headache, which was constant, but at the same time, with paroxysms of greatly increased pain; nausea, and from time to time vomiting. Her general health was poor; appetite fair; temperature normal; face rather flushed. Her headaches were still constant and were always located in the left temple and left brow. Occasionally also she vomited. Dr. McCormick saw her in one of these attacks and the vomiting was explosive, the contents of the stomach being ejected with great force.

Her eyes were examined some time in February and early in March, 1901, by an oculist at Dr. McCormick's request. The oculist prescribed glasses and reported there was no choked disc, the pupils were equal but sluggish in responding to light. There was also tenderness on pressure on the left eyebrow.

About this time, probably earlier in March, she began occasionally to drop a word or use a wrong word, and sometimes to wander a little and say foolish and simple things, all of which errors she herself recognized. Her cerebration also at this time became sluggish. Dr. McCormick then prescribed iodide of potassium up to grs. 60 and even 80 *t.i.d.* This she continued for about 30 days, and improved very much, so

*Read before the Philadelphia Neurological Society, October 22, 1901.

that she had no violent attack of headache, although slight continuous headache persisted for some three weeks. She only vomited three times during this period. Occasionally she was wakeful, when 6 to 8 grains of chloretone would give her a good sleep.

In March she first disclosd to Dr. McCormick that there was a tumor in her left breast about the size of an English walnut, which she said had existed for at least a year.

On April 23d marked drowsiness set in, which increased during the next day. She soon began to answer only in monosyllables and not at all unless spoken to loudly. For from 24 to 48 hours before I saw her, she had been almost coma-



Tumor of the frontal lobe, measuring 6.5 cm., removed at operation.

tose and of late entirely so. She, however, swallowed when liquids were put in her mouth and occasionally opened her eyes. With this drowsiness her temperature rose to 101° and 100.5°. When I saw her it was 99.6°; her pulse from 124 to 130. There was no paralysis. When her drowsiness began she had involuntary urination, which has continued ever since. The bowels have never been opened involuntarily.

On April 7, another examination of her eyes was made, when it was reported that the choroid was congested, especially on the left side, the left optic nerve swollen, but the edges sharply defined; vision 0.6, but this defective vision had

existed for a considerable time before this examination. She has had no epileptic attacks. Sensation has been dull, but is present even now, for she flinches slightly when hypodermatics of strychnia are given. This flinching occurs in both legs. There has been no paralysis of any ocular muscles and no exophthalmos. All her special sensations are good.

In the urine there are no albumin and no casts (except possibly on one occasion); sp. gr. 1020 to 1022; amount normal.

Physical Examination—She was lying in bed with her eyelids nearly closed and entirely unconscious. She responded neither to speech nor to shaking or other means of attracting her attention. The pupils were widely dilated on both sides, but this was the result of atropine which had been used. She had not moved voluntarily for a day or two, but this seemed to be the result of her unconsciousness and was not strictly a paralysis. The knee-jerks on both sides were feeble; on the right side almost absent.

The one phenomenon which was extraordinarily clear was that elicited by tapping on the two sides of the head from the forehead back to a point a little behind the binauricular line. On the right side tapping produced a sound that was distinctly dull and flat like that over the liver. On the left side it was a number of notes higher in the scale and might almost be described as tympanitic, it was so different from that on the right. It seemed as though it were due to partial separation of the bones from intracranial pressure.

April 25th, 10 A.M. When she was placed on the operating table, I again percussed the skull as before, but could not now recognize any difference between the two sides. I placed the head in various positions to see if the sound could be elicited, but it could not. The difference on the two sides was so striking ten hours before that both Drs. McCormick and Armstrong, and the patient's husband and the nurse recognized it even without my calling attention to it.

Dr. McCormick's diagnosis was a cerebral growth, probably in the left frontal lobe. Even before I examined her, from the history I reached the same conclusion and after examination, especially on account of the very curious difference in percussion on the two sides, I concurred with him in the diagnosis and recommended immediate operation as a desperate chance for her life, but the only one.

Operation, April 28. I made an incision beginning in the left temple, running parallel to the left eyebrow up to within a cm. of the median line. I placed this incision as low as I dared without opening the frontal sinus. I then passed back-

ward parallel with the median line and 1 cm. to its left to a point about 2 cm. back of the binauricular line, then obliquely downward to the temple, leaving a base for an osteoplastic flap. The flap was made with the chisel and osteotome. As soon as it was reflected, I palpated the brain and could not discover much difference from one part to another on pressure. I was surprised to find the dura lacking in great tension, for I had fully expected to see very marked tension, as I deemed the tumor a large one. On the whole, the posterior-superior angle seemed to be a little harder than any other place, and I opened the dura at that point only to find the brain entirely normal. I then carried my incision along the three sides of the flap and removed the dura entirely. At the anterior superior angle almost hidden under the dura was a little discoloration. More careful inspection showed me that this was the edge of a subcortical tumor just bursting through the cortex. It was only a little darker than the rest of the brain. If the incision had been 1 or 2 cm. higher, I should certainly have missed it entirely. I reflected then the flap of normal brain tissue over the tumor and passing my finger in was able to differentiate the tumor, which might almost be described as enucleated, so distinct was it from the brain substance. I was able finally to discover the lowermost edge of the tumor, and when I reached it, it was down on the orbital plate. Sweeping my hand then forward and upward I found the tumor moderately adherent to the dura lining the vertical portion of the frontal bone, and as I swept my two fingers upward in the enucleation of the tumor, I found that the fingers were drawn upward in direct contact with the falk cerebri. The size of the tumor was 6.5 cm. As soon as it was removed a quite lively hemorrhage took place, and I immediately packed the cavity with iodoform gauze. After a few minutes this was removed, the hemorrhage was but slight, but the cavity left by the tumor was filled with another piece of gauze, the end of which was left long for drainage. The whole wound was then irrigated with warm salt solution, the dura sutured, and the osteoplastic flap replaced, the anterior superior angle of it being gnawed away to allow room for the exit of the gauze. This portion of the bone corresponding to the tumor was so tense that only the smallest bits of bone could be bitten off by the rongeur forceps. The bone was greatly sclerosed.

She died four hours after the completion of the operation, never having recovered from the shock of the operation.

Dr. Spiller reports that the tumor is a spindle-cell sarcoma.

NEW YORK NEUROLOGICAL SOCIETY.

March 4, 1902.

The President, Dr. Joseph Collins, in the chair.

A Case of Myotonia.—Dr. J. Ramsay Hunt presented a man, twenty-eight years old, who had come to the clinic with a history of having a peculiar stiffness of the hands and of the muscles of the jaws in the morning. On awakening it was found impossible to open the eyelids to their full extent for a minute or more. This myotonia was aggravated by cold or prolonged rest. There was a consolidation at the apex of one lung in this patient. Strong, stable galvanic applications produced no wave-like contractions such as are sometimes observed in myotonia. The hands were weak; the knee-jerks were difficult to elicit, except on reinforcement. The muscles were small and showed no evidence of hypertrophy. The legs were not involved.

Lymphatic Angiomata.—Dr. Joseph Fraenkel presented a man who had symmetrical tumefactions in pre-auricular space, over the upper part of the sternum, between the upper borders of the shoulders, and also in the abdominal wall. The man gave a history of chronic alcoholism. The speaker said that according to the modern conception the disorder was a localized disease of the lymphatic glands and vessels—in other words, a lymphatic angioma. Since admission to the Montefiore Hospital this patient had developed a rather acute tuberculosis. According to the literature, thyroid medication in such cases causes a diminution of the body weight, although the tumors, despite their close resemblance to lipomata, remained unchanged.

Multiple Neurofibromata.—Dr. Fraenkel presented specimens from a patient who had long been in the Montefiore Hospital. The patient was a woman who was thirty-one years old at the time of her death. Her family history was excellent, and she had been well up to eleven years ago. At that time she had given birth to a still-born child, and claimed that shortly afterward she had developed a tumor on the right side of the abdominal wall. Soon after this the left lower extremity became contractured. On admission to the hospital there were contractures of both lower and upper extremities, and they were supposed to be hysterical contractures. In the later stages she presented the picture of hysterical chorea. There were very irregularly-distributed atrophies and changes in the reaction of the muscles of the upper extremity, and in some of the muscles of the lower extremities. There was also total paraplegia. There were no trophic disturbances. At the autopsy a number of tumors, neurofibromata, were found. One of these almost totally compressed the cord. The brachial plexus was the seat of numerous neurofibromata.

Dr. Joseph Collins said that cases of multiple neurofibromata must be extremely rare, as he had just seen his first case of the kind. This patient was a smoker who came to the clinic stating that he had suddenly begun to experience pain in the right arm and shoulder, and that pain and inability were increasing. Twelve years ago he had had a somewhat similar condition, but had recovered from it, and the history indicated that there had been several other similar but slighter attacks. Examination showed that the musculo-

spiral, the circumflex and the suprascapular nerves were the ones particularly affected. They were tender on both superficial and deep pressure. Investigation showed no less than 70 tumors in different parts of the body, varying in size from one-fourth to one-half an inch. Two of these tumors could be felt in the inferior border of the axillary space where the external division of the brachial plexus was situated. It was, therefore, fair to infer that these tumors were similar to those found in the other parts of the body, and by an implication of a part of the brachial plexus had given rise to the pressure neuritis from which the patient was suffering.

Dr. Harlow Brooks said that at the January meeting of the New York Pathological Society a specimen of neurofibroma had been shown. Only the sciatic nerves were involved, and the enlargements were almost symmetrical. There was apparently a complete obliteration of the nerve fibers.

The Histrionic Element of Mental Disease.—Dr. Theodore H. Kellogg presented a paper on this subject, which, he said, was not only an interesting topic but of real diagnostic importance. Shakespeare had recognized this by introducing several insane persons into his plays. The acting was involuntary in some, and intentional in other insane persons. The maniacal patient was sometimes driven by vivid hallucinations to emotional acting. There was nothing more spectacular than a powerful man wrought up by hallucinations and delusions. The most persistent and intentional forms were seen in paranoiacs. The theatrical stage afforded nothing more striking than the lunatic leading a crowd of sane persons from their sober avocations into all sorts of vagaries of religious belief. It was the rule that whatever had been attained by laborious effort was generally abandoned in mental disease, and hence, the professional actor showed no special tendency to acting when insane. A number of cases of erotomania had come under observation which had been characterized by most persistent acting. Jealousy was one of the most powerful passions, and when it had insane intensity it led to the most tragic performances. Mental patients were prone to mimic those around them most persistently and cleverly. In most large hospitals for the insane were to be found those acting as buffoons for the edification of themselves and others. Malingering rôles were sometimes acted for weeks and months, and sometimes the patient even burlesqued the mental disease. They sometimes dissembled their real symptoms and denied the existence of delusions in order to secure discharge from asylums. It was well understood that prolonged feigning might lead to insanity, but it was not so generally known that unless the histrionic element were repressed it would tend to interfere with the cure of the mental disease. The recognition of the histrionic element as an integral part of mental disease shed light on some obscure phases of mental pathology, and had practical bearings in the prognosis and treatment of mental maladies.

Dr. Lyon said that the author of this paper had enjoyed unusual opportunities for observing insanity in all its forms, and the instances cited were undoubtedly the exceptions rather than the rule. There were not many who act a consistent rôle for any length of time. He had known some of these patients who were trying to act the rôle of a certain personage halt for a moment when confronted with the statement that this was not the true impersonation. He agreed with the reader of the paper that it was well to discourage, without actively combating, these delusions.

Dr. Deffendorf said that the paper was exceedingly interesting from a descriptive standpoint. He could not agree with the statement that the histrionic element was of great prognostic and diagnostic value. Such acting was said to be the expression of morbid impulses, and that it occurred in connection with grandiose ideas in paranoia, yet in the one class the prognosis was good, and in the other it was very unfavorable.

Dr. Ralph W. Parsons described a number of striking and amusing cases illustrating the histrionic element. He said that in these cases the imagination was the predominant element, and that there was often a reversion to the mental state found in children or in primitive races.

Dr. Noble, of Middletown, Conn., said that the patients he had met with who had displayed the histrionic element, had rarely been consistent; they would not carry out the entire character impersonated as an actor on the stage would do. Whether this were because of deficient knowledge of the character impersonated or because of a deficiency in histrionic ability, he could not say. He had always looked upon this element as unfavorable, probably because it was so largely seen in paranoiacs.

Conditions for Psychiatric Research.—Dr. Adolf Meyer read this paper. He spoke of the founding of the New York Pathological Institute of New York State, and of the causes which had led to the failure of this work. He said that he had hesitated long before accepting the present unenviable position and the task of reorganizing this institute, and making it more generally useful. He had been told that the hospitals for the insane would not receive what they most needed if the institute began its work with research. The scientific spirit in the hospitals should be stimulated and fostered in every way possible, and hence clinical and pathological work should be done as far as possible in these hospitals under the supervision of the institute. The central institute should offer to the hospitals advanced instruction in clinical psychiatry. The central institute should not, however, abandon original research. The safest starting point was undoubtedly actual experience. The pathologist of the hospital for the insane had found himself hedged in by narrow routine, and the hospital staff so engrossed with routine work as to have no time or inclination for original scientific investigation. The speaker then went on to point out many of the inaccuracies of symptomatology and the shortcomings of histology as applied to psychiatry. In his opinion, the staffs of the hospitals for the insane were entirely too small to do their work well. Psychiatry knew little as yet of diseases, as that term was used in connection with other parts of the body—in other words, it knew little of pathological entities. In no other field of medicine were absolutely accurate records so useful as in psychiatry, yet where were such records to be found? The effort of the present day should be to improve the records and do away with the prevalent impressionist method. Dr. Dent, of the Manhattan Hospital, had agreed to give the necessary clinical material for a start, and a chemical laboratory and a histological laboratory for study in clinical psychiatry would be established, and, in time, a psychological department would be added. All those in charge must be physicians especially interested in psychiatry. The assistant physicians in all the hospitals should be encouraged to do good work according to the recognized modern scientific methods. The new movement must be a natural outgrowth of the present conditions.

Dr. Lyon thought the workers in the hospitals for the insane would very generally welcome such help as had been offered in outline in this paper. He had long felt that clinical and laboratory work should be practically united.

Dr. Smith Ely Jelliffe congratulated the reader of the paper and pledged his hearty coöperation. He said that he knew the stress of work laid upon the hospital interne and sympathized with him, and for this reason he thought the suggestions contained in this paper were most judicious.

PHILADELPHIA NEUROLOGICAL SOCIETY.

February 25, 1902.

The President, Dr. J. K. Mitchell, in the chair.

A Memoir of the late Dr. J. T. Eskridge was read by Dr. C. K. Mills.

Conditions of Psychiatric Research.—In the annual address delivered before the Neurological Society of Philadelphia, Dr. Adolf Meyer outlined what he would consider safe ground for psychiatric research, and especially what conditions demand consideration in any such plan as the organization of a central institute of psychiatric study in the State Hospital system of the State of New York. In the face of several high-sounding and would-be constructive sketches which have given the public a rather too imaginative view of the duties and possibilities of psychiatry, and equally aware of the nihilism of a large number of medical men concerning the prospects of study in this complicated field, he chose to give a simple statement of the existing conditions and opportunities of some of the efforts for advance which have been made, and of the reasons for a certain degree of lack of satisfaction with the outcome of some of them. On these premises he built a brief sketch of the general policy which would seem most promising and least exposed to calamities from weakness of the roots or from premature starts before the season of frosts had passed by.

Medical schools have medical and surgical clinics specially organized for the purposes of teaching and research; but they only are guests in hospitals for the insane, and offer no chances for the study of the fundamental requisite of special work in psychiatry. In the hospitals the economic problems are so enormous that the head and even the assistants are not in a convenient position to make up for what the medical schools are forced to neglect. The opportunities for better work exist and are used in many places, but often under discouraging conditions. There are frequent changes in the entire policy of the hospitals, too often dominated by ideals of economy on the part of the State rather than by those of efficiency; owing to the small number of physicians, an unfavorable ratio between the administrative and the truly medical issues in the work tends to crowd out the student, and these drawbacks are accentuated by some fundamental defects in the efforts to correct the appearance of lack of scientific interest. The point of attack for efficient changes lies in these last-named elementary matters, and an improvement of the chances and the numbers of the staff, and the policy of the hospitals and the State can be expected only from a natural evolution from the foundation.

Scientific medicine or pathology has been introduced in many hospitals, but usually, copying general hospitals, in the shape of a microscopist, and the hopes seem to be put chiefly on laboratories and on methods used in modern clinical medicine and modern psychology.

In principle, this is certainly correct and legitimate. But as conditions are in psychiatry, many of the new methods find no adequate home in the present status of clinical knowledge of psychiatry, and much of the work appears disconnected, devoid of the aims which

so plainly exist in pathology of many of the somatic diseases, and we are forced to recognize that to apply detail methods before the foundations are laid is an attempt at making a shortcut and one sure to fail sooner or later.

The advance of general pathology in the other fields of medicine was built on a strong foundation laid by the great clinicians of the beginning of the last century. Psychiatry, especially in this country, has had to cope with large practical problems and the foundations of a careful knowledge of the facts about insanity were correspondingly meagerly treated. We lack, today, sets of records systematically taken, which would furnish us such material for the finer methods of psychiatry, as bacteriology and other branches of pathology, found in the clinical knowledge of consumption and of diphtheria, and such as are available for the open problems in our knowledge of measles, scarlet fever, small-pox, etc.

The temporary lack of directness of records must not deter us from efforts to improve them, and from working for that which other branches of medicine could do a hundred years ago. It is a grave error to think that statistics of large numbers can help us over the lack of real certainty of what is seen and has been done in individual cases as long as the uncertainty and haziness is not merely casual, but the rule. Out of the needs of explanation in individual cases and in groups of cases, problems of detail will arise, and only with a contact with a well-worked-up clinical material can we hope to gain the necessary appreciation of proportions and relations in plans of work and the valuation of the importance of results.

Neither anatomy nor pathological anatomy of insanity, nor old and new psychology by themselves, nor a collaboration of all the biological sciences can make up for the lack of a safe foundation, and the sooner we recognize that not anatomy as such, but every mode of establishing chains of facts which allow of experimental control, or approach experimental certainty, is veritable pathology, the sooner we shall get rid of that uneasiness which undoubtedly exists in many places and leads to the nihilistic assertion that "there is no pathology of insanity as yet."

The normal development of psychiatry therefore demands not an extraordinary revolution, but before all a well-planned organization and improvement of that which exists as practical work. A knowledge of its opportunities and needs, united with a knowledge of the methods available in scientific medicine and the special sciences of biology, alone is able to bring about that helpful coöperation which the hospitals have a right, and the duty, to look for.

Dr. Meyer gave a sketch of the organization carried out in Worcester Insane Hospital, and described in its annual reports, and went on to sketch briefly the plan of a central institute which in order to be helpful to the State hospitals must do work in harmony with that of the State hospitals, get its foundations on clinical work conscientiously carried out, and in a development of interest in possibilities of improvement among the medical staffs of the State hospital.

The needs of the assistant physicians lie in directions which do not get much help in medical schools or books, and it is not only commendable, but an absolute duty on the part of the State, to provide chances for training and research, because the State and a few wealthy private concerns monopolize the institutions in which psychiatry can be studied at all, and in which thorough knowledge of the methods and problems can be acquired and taught. The State forces its physicians on the patients, who are deprived of their choice

by law and disease, and the State must therefore help itself and its institutions to be able to carry the burden of this serious responsibility.

It is to be regretted that so many programs of psychiatric research consider it below their dignity to insist on the correction of some of the simple defects in the work, and dwell on Utopias for which foundations are absolutely not prepared yet. Of these Utopias little was said in the address, nor were any promises made which cannot be safely expected to be capable of fulfilment under satisfactory conditions.

The new institute will provisionally be located on Ward's Island. A small clinical service will be arranged and conducted with special reference to teaching and research, so that assistant physicians from various hospitals can get training in all the matters which they meet in their own work. Practical demonstrations are furnished concerning the issues in examinations and methods of obtaining and recording general clinical, chemical and psychological data, and the requirements for appropriate utilization of the autopsies. Satisfactory and helpful teaching can only be given on material collected by the teacher, and accessible of control to the one who is taught, and an institute furnishing this will form a natural basis for special research as well, and meet the demands of the hospitals, so that a more natural relation and harmonious co-operation in the work between the institute and the hospitals can be affected. It is to be hoped that these definite and unassuming plans will inspire the necessary confidence of the governing bodies until the work itself can demonstrate its justification.

Dr. Charles K. Mills believed that the first and greatest step towards a knowledge of psychiatry was accurate and thorough methods of study of psychiatry clinically. Every one must be struck with the feebleness of our clinical methods of investigating mental disease as compared with our methods of investigating other diseases, especially with those employed in general neurology.

He believed that little would be accomplished until there was organic union more or less complete between the clinician and the pathologist. One reason why so much work has been done with so little result is that the material used for pathological research is so often used by those unfamiliar with the clinical work done previously.

Dr. Francis X. Dercum said that it had always seemed absurd to him that in hospitals, and especially in insane hospitals, the number of physicians should be so small as compared with the amount of material. With his routine duties the physician has little time for scientific work. A single case may present problems that would require days, months or even years of observation. He was glad to see so excellent a plan outlined, and he had no doubt that the application of the methods referred to, especially those of chemistry, would yield some results as regards the action of various toxines on the nerve tissues and cells. Psychiatry is in the transitional stage. It is the youngest of the medical sciences, and the last to receive scientific treatment, but it is a field full of promise.

Dr. Charles W. Burr said that one of the greatest difficulties in the study of the mental symptoms of disease was that we do not know anything about the healthy mind. It is impossible to tell why a man has hallucinations of smell, it is impossible to have any conception of the mechanism of hallucinations of smell when we have no idea how the normal man smells when not sick. The same thing

is true of every intellectual process. There is not a single intellectual process which we thoroughly understand. All that we know is that the brain does think. How it thinks we do not know. So long as that continues mental disease will be a bogmire without form and void. Almost all the work that has been done in so-called psychology has not been work in psychology at all. It has been work in the physiology of the brain, not in the intellectual processes of the brain. The only possible thing to do is to go on examining cases. He thought that unless we discovered higher powers of the microscope, or staining processes of which we now know nothing, it would be a long time before we learned more of the morbid anatomy of insanity. The chemical line is the line of the future, and it is in this direction that the greatest discoveries will be made.

Dr. Edward N. Brush stated that his clinical assistants at the Sheppard and Enoch Pratt Hospital were now engaged with the general physicians in the Johns Hopkins Hospital in studying the mental symptoms of general diseases such as typhoid fever. There are many symptoms which should have been observed but which have been utterly neglected.

He had been exceedingly interested in Dr. Meyer's paper, and had watched the development of the laboratory in New York State with peculiar interest, because he had himself served for some years in one of the New York hospitals, that of Utica, which was the first hospital to establish a laboratory. In that laboratory the mistake was made that there was very little connection between the observations in the laboratory and those in the wards. He believed that the work as outlined by Dr. Meyer would accomplish good results.

Dr. S. Paton referred to the work now being done by the physicians of the Sheppard and Enoch Pratt Hospital in the wards of the Johns Hopkins Hospital. One member of the staff is studying the mental symptoms in cases of Bright's disease, typhoid fever, pneumonia, and so on. A good general autopsy is made by one of Dr. Welch's assistants, and then the physicians take charge of the brain and the rest of the nervous system, which is worked up in the laboratory. Conferences of the whole staff are held and new cases are discussed. Daily rounds are made by the whole staff.

He referred especially to the liberal attitude of the trustees in the management of the hospital.

Periscope.

Rivista di Patologia Nervosa e Mentale.

(1902. Vol. vii, fasc. 3. March.)

1. Pathology of the Cells of the Sensory Ganglia. E. LUGARO.
2. Contribution to the Study of Parkinson's Disease. P. GONZALES and P. PINI.

1. A Continued Article.

2. *Parkinson's Disease.*—One of the numerous theories as to the pathogenesis of Parkinson's disease has arisen in the widely-accepted belief that the condition does not belong to the neuroses; and there is much in favor of the hypothesis that the affection is due to some anatomical lesion of the nervous system, probably the brain. Gonzales and Pini report a case of epilepsy dating from early childhood in which convulsions gradually diminished in frequency and finally disappeared about the forty-fourth year; only to be succeeded a few years later by the gradual development of *paralysis agitans*. The authors advance some suggestive arguments pointing to the possible origin of the last-named condition in those influences which, acting upon the motor zone, had given rise to the epileptic seizures and so modified that area as to render it a favorable site for the development of Parkinson's disease.

R. L. FIELDING (New York).

Archives de Neurologie.

(1902. Vol. xiii, No. 76, April.)

1. Theory of Obsession. F. L. ARNAUD.

1. *Theory of Obsession.*—The author calls attention to the occurrence of obsession in the normal, as illustrated by the obstinate intrusion upon the mind of a phrase, a strain of music, etc., the banishment of which requires strong effort of the will. Morbid obsession is discussed from the intellectual and emotional standpoint, the author concluding that both intellect and emotion play an important rôle; but back of both, and antedating obsession, is the condition of abulia, the former being considered above all a disease of the will.

R. L. FIELDING (New York).

Monatsschrift für Psychiatrie and Neurologie.

(1902. Vol. xi, No. 2, February.)

1. Experimental Studies on the Effect of Mental Work on the Urinary Excretions. MAINZER.
2. The Condition of the Spinal Cord in Pulmonary Tuberculosis of the Insane. RANSOHOFF.
3. The Microscopical Findings in the Case "Gorstelle." LIEPMAN and STORCH.
4. On Exhaustion Psychoses. RAECKE.

1. *Experimental Studies on the Effect of Mental Work on the Urinary Excretions.*—In a series of experiments upon himself the author found that the excretion of organic phosphorus was diminished to a mere trace after severe mental exercise. A comparison of the work with the rest period showed the nitrogen excretion in the former was 14 per cent. of the entire excretion as compared to 6 per cent. for the

rest period. The nitrogen curve was an excellent index of the exhaustion and repair processes. Observation on several neurasthenics and similar depressive states in the mild psychoses showed that sleep was of a light character during which the nitrogenous products were slowly and incompletely eliminated. Sleep was lightest in the late hours and waking in such cases was a prolonged process.

2. *The Condition of the Spinal Cord in Pulmonary Tuberculosis of the Insane.*—The microscopical examination of the spinal cord in nine cases of tuberculosis gave Ranshoff the following conclusions: (1) The white substance of the spinal cord, especially in the long tracts, frequently suffers injury in pulmonary tuberculosis. In the beginning such changes are only manifest by application of the Marchi method of staining, later in the entire decay of medullated fibers and replacement by glia overgrowth. (2) Those cases are especially predisposed which run a rapid course, notably those of so-called mixed infection. (3) The degenerative process is especially marked in the posterior columns of the cervical and the pyramidal tracts in the upper dorsal region. The extra-medullary roots are never involved. (4) Edema of the spinal cord is not a rare condition in phthisical cases, but is independent of the former degenerative changes.

3. *The Microscopical Findings in the Case "Gorstellc."*—Liepmann and Storch conducted the microscopical examination on the case of apoplexy shown fifteen months ago by Wernicke at a medical society at Breslau, as a case of "pure subcortical aphasia." The patient was a man 69 years old, who presented his unique aphasic symptoms after a stroke of apoplexy in 1898. A second attack which occurred 15 months later caused death. The autopsy, performed 40 hours after death presented a large blood cyst extending over the entire left hemisphere; the corona radiata of this side was entirely destroyed by the hemorrhage. A secondary degeneration of the tapetum was found in the right temporo-sphenoidal lobes which was the result of the original lesion in the corona radiata and the tapetal region of the left side was found entirely destroyed in the secondary and fatal hemorrhage. Notwithstanding the evidence is not conclusive, the authors conclude that the case proves the lesion for word deafness or "subcortical sensory aphasia of Lichtheim," at least in this case, a unilateral subcortical destructive one, affecting the integrity of the tapetum.

4. *On Exhaustion Psychoses.*—Raecke presents in conclusion carefully detailed clinical histories of ten cases of mental diseases induced in individuals by bodily and mental exhaustion in which the hereditary element was at the minimum. The mental symptoms were of the delirious type; the patients presented for the most part non-systematized delusions of persecutions and also hallucinations of the same general character. The author believes that such cases of mental disturbance may not be isolated from the severe disorders of the insanities proper; and while he thinks such a type of mental disease deserves a more definite name than "exhaustion psychosis," he fails to suggest a better one.

5. To be abstracted at conclusion of article in next month's number.

L. PIERCE CLARK, (New York).

Neurologisches Centralblatt.

(1902. March 1. No. 5.)

1. Pathological Anatomy of Tetany of Gastric Origin. N. G. J. ROSSOLIMO.
2. A New Tetanic-like Affection of Chronic Lead Poisoning. HANS HAENEL.
3. Staining Nervous Tissues with Magenta Red. P. ZOSIA.

4. *Asthenic Paralysis and Autopsy Record.* (E. FLATAU) GOLDFLAM.

1. *Pathological Anatomy of Tetany.*—An autopsy report on a case of tetany, associated with narrowing of the pylorus, which was due to an overgrowth of connective tissue, probably the result of a gumma in the stage of final sclerosis. The voluntary muscle tissue under the microscope, showed an increase in the sarcolemma nuclei, arranged in places in chain-like formation. Degeneration of the anterior and posterior roots, with disappearance of the myelin sheaths, swelling and tortuosity of the axis cylinders, etc., was found. By the Marchi method small dots of degeneration were found irregularly scattered through the spinal cord. Diffuse chromatolysis with displacement of the nucleus was found in some of the spinal cord cells. These cell changes are the result of an intoxication and are not to be considered as specific for tetany.

2. *A New Symptom of Chronic Lead Poisoning.*—A case of chronic lead intoxication in an author, with symptoms resembling tetany. The patient had had lead colic, with the blue line on the gums, and developed a chronic progressive disease of the muscles manifested by tetanic contraction of varying muscle groups, excited by slight irritation, quick movements, etc., and at times developing spontaneously. The tetanic spasm was decidedly painful. Chvostek's symptom was present, but the spasm did not at any time affect the facial muscles. Sensation was normal. The diagnosis was doubtful, but was either a tetany or a myoclonia, or a symptom complex between these two conditions.

3. *Magenta Red as a Stain for Nervous Tissues.*—Zosia calls attention to the value of a 1 per cent. solution of magenta red as a counter-stain for "Pal" preparations, etc.

4. To be continued.

Neurologisches Centralblatt.

(1902. March 16, No. 6.)

1. *A Case of Acute Disseminated Myelitis, or Encephalo-myelitis following CO Poisoning.* A. PANSKI.

2. *A Further Contribution to Asthenic Paralysis.* S. GOLDFLAM AND E. FLATAU.

1. *Acute Disseminated Myelitis.*—A case is reported presenting the following symptoms: a spastic, not atrophic, paralysis of the lower extremities; incontinence of urine and feces; vasomotor and trophic disturbances such as a pemphigus eruption, bed sores, etc., prolonged somnolence lasting over days; confusion; slowed, indistinct speech; amnesia, etc. He therefore makes the diagnosis of acute encephalo-myelitis. The case differs from those already on record, in the presence of the cerebral symptoms. Very few of the above symptoms could be detected after two months. A very complete bibliography is added to this article. McCARTHY (Philadelphia).

2. To be continued.

Journal de Neurologie

(1902. January 5, 20; February 5. Nos. 1, 2 and 3.)

1. *Contribution to Medullary Localization.* PARHON AND GOLDSTEIN

2. *Conjugal Cord Affections.* GLORIEUX.

3. *The Fascia Lata Reflex.* J. CROQ.

4. *The Post-anesthetic Paryses.* D. DE BUCK.

5. *A Case of Vertebral Cancer.* RAYMOND.

1. *A Contribution to Medullary Localization* (Continued from No. 25, December 20, 1901).—Drs. Parhon and Goldstein discuss at length

their theories and results of some of the recent investigations. As the nature of the subject will not bear condensation, the reader is referred to the original.

2. *Two Cases of Conjugal Cord Affections.*—The author refers to the works of German authors, especially Mendel, who report cases of general paralysis of the insane, occurring in man and wife. In the majority of these cases a history of previous syphilis was established in one or both. Strümpell in 1888 recorded a case of conjugal tabes both giving evidences of lues. Talon in 1898 collected 16 cases of locomotor ataxia in married couples. Dr. Glorieux's first pair presented unmistakable symptoms of locomotor ataxia. In neither was the slightest history or indication of syphilis forthcoming. The wife had given birth to 15 children, 10 dying in early life, one of convulsions, the others of fevers.

Of the second pair the husband had tabes of the amaurotic type, and the wife a spastic paresis of the right leg, with slight vesical symptoms; no sensory disturbances; Babinski phenomenon on both sides. The wife's paralysis had developed gradually, following an operation for removal of a uterine tumor. She had had one miscarriage and three still-born children previous to this. Here the writer likewise excluded syphilis, admitting, however, that the large mortality of the offspring in the first case, and the still-births in the second, would be accepted by many. Clinicians, he says, are too prone to accept vague and uncertain evidence of this character as bearing on an antecedent syphilis.

3. *The Fascia Lata Reflex.*—Reference is made to Brissaud's original communication on this subject in 1895. Brissaud obtained by gentle plantar stimulation an isolated contraction of the *tensor vaginae femoris*; in some cases a contraction of the adductors, or the adductors and extensors of the thigh occurred as well. In a few cases contraction of the adductors of the opposite thigh was the only response.

As the plantar innervation corresponds to the second and third sacral segments, and the superior gluteal nerve which supplies the tensor of the fascia lata originates in the third and fourth lumbar segments, Brissaud assumed that the reflex arc had an extensive intramedullary course.

On the other hand Ganault, in his thesis published in 1898, believes that the internal saphenous nerve, which inosculates with the plantar nerves, carries the impulse to the spinal cord, and as this nerve is represented in the second, third and fourth lumbar segments, the intramedullary course of the arc would be materially shortened. Dr. Crocq follows with three observations, in which the fascia lata reflex was present under peculiar circumstances. (I) A man with paraplegia probably due to an alcoholic neuritis; with loss of the tendon and skin reflexes; no sensory disturbances. The sole response to plantar excitation was an isolated contraction of the *tensor vaginae femoris*. (II) A man aged 55, who since his fifth year had carried the remains of a right-sided hemiplegia: exaggeration of the tendon reflexes, ankle-clonus and Babinski, presented symptoms of cord compression in the lumbar region: paraplegia, loss of pain and temperature sense below the umbilicus, maintenance of the sphincters and decubitus. The patellar and Achilles jerks were of normal range on the right side, very feeble on the left, cremaster and abdominal reflexes abolished, Babinski present on both sides as well as a very energetic contraction of the tensor of the fascia lata. (III) A mason who, from an injury to the cord at the age of 22, was left with a permanent bilateral foot drop, at the age of 52 was seized with pains and weakness in the lower extremities; sensation undisturbed; knee-jerks abolished, Achilles jerks exaggerated, plantar and

cremasteric reflexes feeble. The reflex of the fascia lata exaggerated on both sides. His symptoms, which were due to alcohol, improved under treatment, but then persisted: loss of knee-jerks, exaggeration of the Achilles jerks lends support to the theory of Brissaud that the sciatic and not the internal saphenous conveys the centripetal impulses.

4. *The Post-anesthetic Paryses*.—Dr. D. de Buck quotes some of the conclusions reached by Bastit and de Moret in their extensive monographs dealing with this subject. That the amount of chloroform administered bears no relation to the production of the paralysis. Hysteria and cachexia are predisposing factors. Cardiac and arterio-sclerotic affections play a rôle (embolism and thrombosis). These paralyses are especially frequent in women, not infrequently following operations on the genital organs. A reflex paralysis from the operative trauma offers the only explanation in some cases. Various types of paralyses occur, as monoplegia, hemiplegia, disseminated and cranial. The symptoms are usually not severe and disappear quickly, suggesting a remediable cell or fiber change (*lésions necrobiotiques*). Dr. de Buck follows with three personal observations.

Case I.—A woman aged 56 years underwent curettage for an inoperable carcinoma of the uterus. Chloroform narcosis of fifteen minutes' duration. Regained consciousness with a paralysis of the right arm with tingling. No objective sensory disturbances, no electrical changes; recovery in two months.

Case II.—A woman aged 40 was operated for uterine fibroids. An abdominal hysterectomy was performed, in the Trendelenburg position, chloroform anesthesia lasting an hour. After the effects of the chloroform had worn off, there remained a paresis of the left arm with tingling, exaggerated reflexes; no objective sensory disturbances; no electrical changes.

Case III.—A woman aged 44 was 15 minutes under chloroform for a curetttement. Was very anemic. The next day developed a right-sided hemiplegia with motor aphasia; ankle-clonus; Babinski's phenomenon. Pains and hyperesthesia on the right side. Total recovery in three weeks.

The author excludes all possibility of trauma or pressure in the above cases.

5. *A Case of Vertebral Cancer*.—Prof. Raymond reports a case of a woman aged thirty-seven years, shortly after an extirpation of the left breast for carcinoma, was seized with dull pains in the back. These pains soon became sharp and lightning-like, agonizing in their intensity, and having an intercostal irradiation. At the same time there developed painful cramps in the lower extremities, causing forced flexion of the legs. Sitting or stooping aggravated back symptoms. Later the lower extremities became numb and progressively weaker, the lancinating pains abating in their intensity. A few months later was admitted to Prof. Raymond's service in the Salpêtrière in the following condition:—complete paralysis of the lower extremities, the abdominal, intercostal and sacro-lumbar muscles. The breathing was diaphragmatic. Knee-jerks present; Achilles-jerks absent, as were also the plantar reflexes. A dissociated anesthesia extending to the umbilicus. Tactile sensibility preserved but obtunded. Deep sensibility undisturbed. There was dysuria, obstinate constipation and tachycardia. Lateral movements of the head caused severe pain; there were frequent sub-occipital headaches. Prof. Raymond refers the symptoms to a carcinoma metastasis, implicating the upper portion of the dorsal segment of the cord, and involving chiefly its antero-lateral portion, including the gray matter. He offers the following division.

- I. Latent carcinoma of the vertebra (involving the body).
- II. Carcinoma of the vertebra causing compression of the cord; posterior root symptoms absent, or of trifling significance.

III. Carcinoma of the vertebra causing persistent agonizing pains. These cases are often produced by the malignant growth, forcing its way through the intervertebral foramina from the thoracic or abdominal cavities. The spinal deformity in carcinoma is usually a curvature *grande courbure* in contradistinction to the gibbus of Pott's disease.

The author, in conclusion, refers to the views, old and new, which have been held in regard to the cord changes produced by compression. The ischemic softening of Tripier. The transverse myelitis of Charcot, with secondary degenerations. The frank inflammation of Leyden. The stasis of lymph and cerebrospinal fluid of Schtscherbach and Rosenbach. The local edema which may be mechanical or inflammatory or both, producing a softening terminating in sclerosis as suggested by Schumanns, who admits that myelitis may develop by a direct extension from the neoplasm. In these cases of malignant disease of the spine with severe pains, Prof. Raymond believes a palliative operation has ample justification, notwithstanding the absolutely fatal prognosis.

J. R. HUNT (New York).

Revue Neurologique.

(1902. Vol. 10, No. 3, February 15.)

1. Two Histological Aspects of Tuberculous Ventricular Ependymitis. D. ANGLADE.
2. Destruction of the Sphenoidal Pole and of the Hippocampal Region in Two Hemispheres. BOUCHARD.
3. A Case of Hematic Cyst in the Brain. A. VIGOROUX AND M. LAIGNEL-LAVASTINE.

1. *Tuberculous Ventricular Ependymitis.*—The author says that few studies are more instructive than those of the nervous systems of patients subject to tuberculosis in any of its forms. To look at a brain tainted with meningitis or tuberculosis is interesting; but much more profit comes from study of the whole nervous system of tuberculous patients who, during life, have shown no marked nervous or cerebral symptoms. It is known concerning tuberculosis of nerve centers that it is there manifested in the form of tubercles or of tuberculous liquid; the bacillus reaches the centers through the meningeal vessels, and in the lumen around these vessels tuberculous granulations are developed which may affect vascular obliteration and consequent softening of surrounding regions. Aside from the direct lesions caused by the bacillus are those in which it takes part only indirectly, as scleroses of the medulla and brain. It has been shown that the tubercle causes, in the medulla, systematic fascicular scleroses, hyperplasias followed by necrosis and formation of cavities analogous to those of syringomyelia; and the lesions of the syringomyelia are associated with those of tuberculous meningitis. Tuberculous poisons in the brain stimulate analogous neurological reactions, and to some of these attention is called by the author.

2. *Destruction of the Sphenoidal Pole and the Hippocampal Regions.*—At the autopsy of a patient who, during life, had shown mental trouble and who succumbed to meningeal hemorrhage, destruction of the temporal pole and the hippocampal region in both hemispheres was assigned as the cause. The alterations seemed to evidence loss of substance without traces of irritation, and may throw some light on questions of the relative functions of the hippocampal region. The patient was a soldier when he began to show mental trouble, especially weak-

ness of memory. He was never delirious, there was never disorder in ideas or acts or any hallucinations; he was always affable, polite and generous; had preserved a certain degree of moral conscience and honesty and liked to give advice. Loss of memory predominated; he instantly forgot what was said, remembered no names, and could not even find his own bed at night, or his place at table, although he always went regularly. Of his past life he remembered nothing except that he had been a soldier, which his bearing and speech confirmed. He spoke little and rarely, only when addressed, and could not reason. The sense of taste was intact and he showed preference for certain things to eat. He could smell keenly, and sight and hearing were good. There was nothing abnormal in general sensibility. He was found one morning immovable and almost unconscious; the limbs were in resolution and reflexes were produced with difficulty. Pulse, 72, and respiration normal. He died the following day.

Autopsy.—Externally the skull presented no malformation. Upon incision of the dura mater on the right side, an effusion of dark, coagulated blood was discovered, which must have extended 8-9 cm. front and back, 6 cm. up and down, and been 1 cm. thick. The blood removed, no trace of false membranes was found or any ruptured vessels. The hemisphere was anemic and depressed in proportion to the quantity of blood lost. Raising the brain to remove it from the skull, a protuberance, which had every appearance of a cyst, was seen near the antero-inferior extremity of the left sphenoidal lobe. The tumor had a very thin, delicate wall and contained a liquid like pure water; but after the removal of the brain it was seen not to be a cyst, but the liquid of the third ventricle, the sphenoidal cornu of which was much dilated. The nerve substance had completely disappeared in this region. The top of the sphenoidal lobe, situated in front of the transverse line following the trunk at the bottom of the fissure of Sylvius, at the beginning, was destroyed, as was also the cornu Ammonis and the V temporal convolution of the hippocampus, the lesion of which extended as far as the isthmus where it involved a part of the gyrus forniciatus and the lingual lobule. The IV temporal convolution had disappeared to a less degree, while the lesion extended back to the fusiform lobe. A thin and transparent membrane, formed by the arachnoid, intimately united to the pia mater and the ependyma, constituted the wall of the ventricle in this region. Outside and in front, on this membrane, the nerve substance was cut off in short pieces.

On superficial examination the homologous parts on the opposite side seemed to have preserved their normal structure, but closer examination showed that the lesions were similar, only less advanced. The convolutions which formed the top of the sphenoidal lobe and of the fourth and fifth temporal convolutions remained only in their superficial parts; the wall of the ventricle, very much dilated, was formed of a delicate layer of gray matter corresponding to the most elevated parts of each convolution, and by a thin membrane near the fissures. The variable thickness of the wall thus atrophied and disorganized was hardly recognizable; the lateral ventricles preserved their normal dimensions in anterior and posterior prolongations. The internal side of the dilated ventricular region was united, smooth and woven with the ependyma; and especially on the left, the protuberance formed by the caudate nucleus was followed from the anterior end to the blunt point on the inferior, in the region of the fissure of Sylvius.

The alterations in the temporal lobes were very interesting, and may be considered from two points of view, the anatomo-pathologic, which may lead to the determination of the nature and cause; and from the

point of view of the symptoms to which they give rise. The question is not of a more or less deeply penetrating cavity, but of an extensive loss of substance comprising the ventricular mass and leaving only the meninges of the superficial convolutions, as instanced in the right sphenoidal lobe.

Although, according to Kundrat and Audry, the porencephalous cavity is usually single, it is sometimes double, oftenest symmetrically placed on the lateral hemispheres; and in proportion of 38 to 26 it occurs on the left, as in the present case. Porencephalitis usually develops in intrauterine life, rarely in early years. The patient under consideration was an exception, as the lesions were developed later, according to his history; the bony protuberance in the left sphenoidal fossa, where the alteration was most distinct, was also proof that the accident was of long standing but not of infancy, which would have caused injury of another sort. He had probably lived twenty-six years after the accident, and had grown better instead of worse, as is the case in porencephalitis. The fact that general sensibility and muscular control, as well as the senses of taste and smell, were normal in the patient, proves that the centers of their various manifestations must be elsewhere than in the hippocampal region, in the Rolandic, for instance, contrary to the suppositions of most physiologists.

3. *Cerebellar Hemiasynergie with Autopsy.—Hematic cyst in the right cerebellar hemisphere.*—The cyst was the remains of a former hemorrhage, found at autopsy fastened in the white substance of the right hemisphere, to which was added, as the immediate cause of death, a profuse hemorrhage retained in the cavity. The anatomo-clinical methods employed justify the following deductions. (1) The value of hemiasynergia for diagnosis of protuberant cerebellar lesions of the same side was first shown by Babinski. By this sign, in the actual case, the cause of the cerebellar syndrome was localized in the right side, and this topographical diagnosis was confirmed by the autopsy. Microscopical examination alone will ultimately determine whether the recent protuberant lesion does not hide an older lesion. Moreover, even in this very case, the anatomo-clinical observation, even if it does not show the cerebellar nature of the hemiasynergia, always shows its protuberant nature. (2) The existence of paradoxical reflexes before pain began and seemingly allied to the recent hemorrhage. This is a fact which must wait for confirmation, and the clinical value of which entirely escapes us.

JELLIFFE.

Revue Neurologique.

(1902. No. 4. February 28.)

1. Flaccid Paraplegia in a Case of Cervical Pachymeningitis. E. BRISSAUD AND MAURICE BRÉCY.
2. Remarks on Permanent Spasmodic Paraplegia through Medullary Tumor. RAYMOND AND R. CESTAN.

1. *Flaccid Paraplegia.*—There is brought forward a new fact concerning paraplegia, observed in the course of a tuberculous cervical pachymeningitis. There has been formerly presented a case of spasmodic paraplegia produced by compression of the dorsal medulla, equivalent to a section. The infallibility attributed to the law of Bastian by most neurologists is not recognized for the following reasons: "We do not dispute that complete and sudden section of the medulla, which produces certain traumas, induces paraplegia, always flaccid, with no reflexes and total loss of sensibility; but until more fully instructed, we consider as proved the fact that a slow pressure acting as a ligature with

an indefinitely prolonged structure, transforming the tissue of the medulla into a veritable cicatrix, may give place to spasmodic paraplegia."

The present case seems to contradict this. A tuberculous patient who showed signs of cervical pachymeningitis for the first time in April, became paraplegic in May. The paraplegia was a flaccid one and he died in September, five months thus passing between symptoms and death. Often apparently merely descending lesions of the lateral cords, either by cutting off inhibitory action of the brain or by emphasizing the excitomotor power of the anterior cornua, regulate the spasmodic condition of cases of progressive paraplegia. In fact, the question is of sudden or apoplectic paraplegia. An hypothesis of the pathogeny of such flaccid paraplegias, which seems at least logical, is ventured: The myoneure is excited from two principal sources, the pyramidal neuron and the centripetal protoneuron, of equal importance, as the suppression of one is fatal to the reflex.

The history is as follows: A man of twenty-five was admitted to the hospital on the first of April with a cold abscess on the upper internal part of the right thigh, situated immediately above the perineo-crural fold. The diagnosis was osteitis of the ascending branch of the ischium. After cocainization of the spine the abscess was lanced and for several days the wound continued to discharge pus. On the 24th the pain was felt in the right shoulder and scapula and there was difficulty in extending the fingers. May 4, there was a slight diminution of the faradic and galvanic excitability of the triceps, radialis, posterior ulna and finger extensors, also the adductor of the thumb. The supinator longus was intact, on account of which fact a vain search was made for lead poisoning. By the middle of May the scapular pains had extended throughout the thorax and the upper limbs; the pain was spontaneous, continuous and severe, unaffected by manipulation. Movement was possible in the left hand, but muscular force was diminished; in the right were all symptoms of radial paralysis of central origin; the arm being raised, the fore-arm fell; hand extension was very difficult; lateral movements and those of fingers and phalanges were impossible. Already there was slight atrophy of the fore-arm and of the thenar and hypothenar surfaces. The electric symptoms were emphasized, but the supinator longus was still normal. Dimution in galvanic excitability was parallel to the faradic. Thus twenty-two days after first scapular pains there was paralysis of the radial nerve with muscular atrophy, except for the supinator longus. The lower limbs were unaffected though the wound of the thigh continued to discharge pus. Twenty-seven days after the first symptoms there was some weakness of the lower limbs, and the next day there was complete paraplegia, with fever. Both legs were impotent, although there were patellar reflexes, exaggerated on the right; plantar reflexes were weak but normal. Sensibility to touch was present, but not to pain, heat or cold; there was retention of urine. Presently the sense troubles extended to the umbilicus and lumbar puncture brought a slightly rose-colored liquid. Fever persisted, the tongue was dry, breath rapid; there was pleurisy on the right with a slight discharge; an eschar appeared on the left buttock and another on the right external malleolus. There was retention of urine and incontinence of fecal matter. One eschar ulcerated and a third appeared on the left malleolus, a fourth on the left heel. The entire left leg was edematous.

Anesthesia extended to the base of the thorax, and was absolute for all senses, stopping at a hypothetical inframammary zone. Plantar and tendinous reflexes were gone, only that of the fascia lata remaining. Hard pinching of the legs caused reflex movements of flexion, but pain was not perceived. A slight ptosis of the right eye next appeared, with

myosis and exophthalmia, without diplopia. Movements of the ball were normal. Deglutition was slightly painful. Edema extended to both legs. August 8, there was broncho-pneumonia in the right, and signs of tuberculous pulmonary infiltration. The general state grew gradually worse, with nocturnal delirium, oppression, polypnea, cyanosis. Death occurred September 4.

Autopsy.—Pulmonary tuberculosis, tuberculous osteitis of the right ischiopubic branch. Cranial meninges unaffected. External tuberculous pachymeningitis in the cervicodorsal region, extending from the third cervical to the first dorsal exclusively. A sheath of mammillated fungoid tissue, almost 1 cm. thick, envelopes this part of the spinal cord. In all this region the anterior and posterior roots are imbedded in fungoid masses, and entangled with the mass, the parts of which were recognizable only with the microscope. The microscopic alterations of the nervous substance were many, both in white and gray matter. It is especially to be noted that a large number of conductors are not involved in the anterior columns and in the lower lateral zones.

Compression of the cord was not the cause of this interruption of nervous tracts in white and gray matter; but acute inflammation of a very limited portion of the axis.

2. *Spasmodic Paraplegia and Medullary Tumor.*—What result is brought to the tendinous reflexes of the lower limbs by total transverse destruction of a dorsal or cervical segment of the spinal cord? There are two solutions given in this paper by Raymond and Cestan. According to certain neurologists the patellar reflex, to be evident, needs integrity of the medullary lumbar arc formed by the sensory ganglionic neurone and the motor neurone of the corresponding anterior cornu. If this intact reflex arc is separated from the encephalon by complete section of the dorsal or cervical medulla, the patellar reflex will disappear through shock to the lumbar region, but will soon reappear and there will be a slow, spasmodic paraplegia. If the paralysis of the flaccid type preserves its flaccidity, to explain the absence of contractions, one ought to section the lumbar segment, the medullary roots or the peripheral nerves. According to this opinion the lumbar cord possesses a veritable autonomy and the tracks of tendinous reflexes would be short ones, not passing to the encephalon. In opposition to this medullary theory is one which brings into play the encephalic centers; according to it a tendinous reflex cannot do merely with the intact sensory-motor lumbar arc, unless it is also in relation with certain superior encephalic centers. It is then simply by the mechanism of separation of the lumbar center from the encephalic centers that a complete and sharp section of the medulla determines a flaccid paralysis in spite of the appearance of descending sclerosis of the pyramidal fasciculus.

Often authors have considered only short, or at least subacute sections of the medulla, resulting in fracture of the vertebral column, vertebral osteitis which gives way, pachymeningitis, meningo-myelitis, or in very rapidly progressing tumor. Numerous facts have plainly shown that rapidly-appearing lesions accompany, in case of complete section, flaccid paraplegia, whatever hypothesis be taken to account for the flaccidity. Is the case similar with slow and progressive section? If by chance even a very slow evolution by an infectious meningo-myelitis accompanies the transformation of a spasmodic into a flaccid paraplegia, one would suppose, from the toxic and infectious nature, that meningo-myelitis would alter the lumbar neurones, whose integrity is indispensable to the manifestation of tendinous reflexes. The ideal process would thus be transverse medullary destruction of long duration, progressive,

made day by day and by a mechanical process without the intervention of a toxic-infectious factor. The experimental conditions can not be realized, especially in the ape, whose tendinous reflexes are nearest to those of man. Thus experimental physiology cannot solve the problem, but one must resort to the anatomo-clinical method. There exists in pathology a category of medullary tumors, psammoma, well localized, slow of development, which, starting on the meninges, little by little include the medullary segment in the fashion of a hard, foreign body, whose increase finally determines the destruction of the segment. A veritable experience of pathological physiology accompanies these. Two cases were observed of this sort, both of whom for several years presented a paraplegia always spastic with spinal trepidation, to the moment of death; at the end there was added anesthesia of the lower limbs, incontinence of urine and eschars. At autopsy it was found that a psammoma had filled the medulla in the region of the eighth dorsal segment. It may be objected that in spite of evidences the cord was not completely destroyed in the locality of the compression. Although a few nerves were found, these were included by the tumor and moreover complete degeneration of all fasciculi was observed above and below the impression. Granulations were also seen in the zones where the posterior and lumbar roots entered, and in spite of this, which would have involved flaccidity and lent weight to the point of view of destruction of the seventh dorsal, paraplegia was always markedly spastic, the patient's legs were rigidly extended and very active in the tendon reflex.

To explain the persistence of spastic paraplegia, there are but two hypotheses. It may be supposed that the tendinous reflexes, in adult as in the child, travel simply by the short medullary tracks and that the encephalic centers do not intervene in the production of tendinous reflexes and contraction. Hence one adopts the theory of the abnormal excitability of the short reflex track uniting the posterior cornu to the anterior by the sclerotic tissue of the pyramidal fasciculus; or the theory of the suppression of the inhibitory function of the pyramidal fasciculus; consequently in the cases, destruction of the dorsal medulla with secondary degeneration of the pyramidal fasciculus caused a spastic paraplegia.

JELLIFFE.

PERISCOPE.

American Journal of Insanity.

(1902. Vol. lviii, No. 3. January.)

1. The Trial, Execution, Autopsy and Mental Status of Leon F. Czolgosz, alias Fred. Nieman, the Assassin of President McKinley. CARLOS F. MACDONALD.
2. The Post-mortem Examination of Leon F. Czolgosz, the Assassin of President McKinley. EDWARD ANTHONY SPITZKA.
3. The Twentieth Century Methods of Provision for the Insane. FREDERICK PETERSON. Discussion. CARLOS F. MACDONALD.
4. The New York Conference of Charities, November 20 to 23, 1901.
5. Recent Advances in Psychiatry and Their Relation to Internal Medicine. STEWART PATON.
6. Hallucinations and Illusions. GEORGE T. TUTTLE.
7. Notes on the Hebrew Insane. FRANK G. HYDE.
8. Traumatic Encephalitis. HENRY P. FROST.
9. A Review of the Pathological Work Done in the Hospital for the Insane at Independence, Iowa. GERSHOM H. HILL.
10. The Pathology of Insanity. LOUIS C. PETIT.
11. A Case of Idiopathic Internal Unilateral Hydrocephalus with Recurrent Hemiplegic Attacks. WILLIAM CHARLES WHITE.

12. Letters from France. A. V. PARANT.

1. *The Trial of Czolgosz.*—The trial was held before Hon. Thomas C. White, Presiding Justice, in the city of Buffalo, on September 23 and 24, 1901. It was unattended by any unnecessary delay, consuming only two court days, the actual time occupied between the beginning of the trial and the rendering of the verdict of guilty being eight and a half hours. When Czolgosz appeared in court he was dressed neatly and was cleanly in appearance. The preparation and trial of the case on the part of the people was almost faultless. Shortly after his arrest District Attorney Penny secured from Czolgosz a detailed statement concerning his premeditations and preparations for the crime, and also of his movements for some time prior to and up to the time of the shooting. Within a few hours after the commitment of the crime the prisoner was put under the observation of local experts in mental disease. These physicians, Drs. Fowler, Crego and Putnam, had free access to the prison at all times prior to his conviction. The District Attorney also permitted conferences between the experts for each side, and gave those for the defense free access to all facts and information in his possession. This course was tantamount to the appointment of a commission of five experts—three for the prosecution and two for the defense—to determine the prisoner's mental condition, and marks a new departure in the methods of expert testimony which minimizes the danger of contradictory expert opinions.

It appears that there was substantially no preparation for the defense beyond a fruitless effort of counsel to confer with the prisoner and the examination made of him by Dr. Hurd and the writer, and their statement to counsel of the conclusion that he was not insane. In court no plea was entered by the attorneys for the defense, but Czolgosz himself entered a plea of guilty to the indictment. This was promptly rejected by the Court, who directed that one of not guilty be entered.

Throughout the trial the defense was conducted in a perfunctory manner and no testimony was offered on the defendant's behalf.

The jury returned a verdict of guilty of murder in the first degree in less than half an hour. Czolgosz heard the verdict of the jury without appreciable display of emotion. He was remanded to jail for two days, and on September 26 was sentenced to be executed by electricity at Auburn Prison in the week beginning October 28, 1901.

The Execution: Czolgosz was executed on the morning of October 29, 1901. As he entered the death chamber he appeared calm and self-possessed; his head was erect and his face bore an expression of defiant determination. While the preliminary arrangements were being made he addressed the witnesses in the following significant language: "I killed the President because he was an enemy of the good people—the good working people. I am not sorry for my crime. I am sorry I could not see my father."

At the instant the current was applied the body was thrown into a state of tonic spasm involving apparently every fiber of the entire muscular system. At the same time consciousness, sensation and emotion were apparently abolished, and organic life was destroyed within a few seconds thereafter.

The Autopsy: An abstract of paper by E. A. Spitzka. The Mental Status: There were several examinations of the prisoner made for the purpose of determining his mental status, but the details will not bear abstracting. The conclusions reached by the writer, viewing the case in all its aspects and with due regard to the bearing and significance of every fact and circumstance relating thereto that was accessible to him, is that Leon F. Czolgosz on September 16, 1901, when he assassinated Pres-

ident McKinley, was in all respects a sane man, both legally and medically, and fully responsible for his acts.

2. *The Post-mortem Examination of Czolgosz* was complete. There were no gross pathological conditions found in any of the viscera. The brain, which weighed fifty-one and a half ounces (1,460 gmms.) was carefully examined and its convolutions and fissures showed no evidences of arrested development or of pithecidal anomalies. So far as our knowledge of the correlation of brain-structure and brain-function extends there was nothing in the brain of the assassin to condone his crime because of mental disease due to intrinsic cerebral defect or distortion.

3. *Methods of Provision for the Insane*.—After a brief discussion of the history of the treatment of the insane the speaker advocated provisions for the care of the insane similar to those at present employed in Germany: Small hospitals for the acutely insane in cities, and colonies for the chronic insane or mixed classes of the insane in the adjacent country. The hospitals for the acutely insane should be conveniently located and should have dispensary departments. One feature of these hospitals would be to furnish teaching facilities for the professors in the under- and post-graduate medical colleges. Patients should be received for diagnosis as emergency cases without legal commitment. The colony should be situated in the country where out-of-door employment could be added to other remedial agents. It is impossible, however, the speaker points out, to make any arrangement which will positively divide the acute from the chronic insane, cases always, as experience shows, arriving at either institution regardless of the nature of their alienations, so that a system of easy communication between the two classes of hospitals is essential. The paper was discussed by Dr. C. F. MacDonald, who agreed essentially with the speaker, emphasizing particularly the inability to separate the acute from the chronic insane absolutely.

4. *The New York State Conference of Charities*.—The Committee on the Mentally Defective rendered its report and Dr. Peterson presented the paper abstracted above. The meeting discussed the status of the insane, of the feeble-minded, idiotic and epileptic, and of the mentally defective in prisons.

5. *Recent Advances in Psychiatry*.—This paper was read before the Marion County Medical Society, and will not bear abstracting, being an essay.

6. *Hallucinations and Illusions*.—Paper will not bear abstracting.

7. *Notes on the Hebrew Insane*.—The article is based upon the case records of the admissions to the Manhattan State Hospital, East, between December, 1871, and November, 1900, in all, 17,135 cases. Out of this number, 1,722, or 10.05 per cent., were Jews, of whom 72, or 4.18 per cent., gave syphilitic histories, and 95, or 5.516 per cent., were alcoholic. Both of these percentages are lower than those found among Christians. In another set of statistics dealing with 3,710 admissions, 15.44 per cent. were Hebrews. Of these 5.58 per cent. were syphilitic and 5.24 per cent. alcoholic. Paresis was present in 18.05 per cent. of the Hebrews admitted. The influence of hospital life on the Hebrew patient is good, and the recovery rate in those under 30 years of age, high. But as they immediately return to their work when discharged, whether cured or not, they are frequently returned.

8. *Traumatic Encephalitis*.—The case reported is that of a locomotive engineer, 51 years of age, who was admitted to the Buffalo State Hospital in August, 1899. The family and personal histories were negative. Patient was struck on the head by a steel bar in January, 1899, and rendered unconscious for a few moments, but continued his trip.

Headache continued from that time, and 28 days later patient had a convulsion. A second convulsion occurred two months later, and during the succeeding six weeks he had fourteen seizures, but was able to continue at his occupation. From that time until the following September he had no convulsions, but his mental power declined steadily, and at times he was irrational and violent. He also suffered from visceral and auditory hallucinations. Later he became restless and confused and emotional and depressed. From September on convulsions occurred at irregular intervals and he became more and more confused, and finally unconscious of his surroundings. Death occurred in coma, on February 24, with a temperature of 106 deg. Fah., pulse 140, and was ascribed to cerebral hemorrhage, the kidneys being normal. Post-mortem showed symmetrical areas of softening at the base in the position where a blow upon the vertex would act by contrecoup, together with beginning arterial sclerosis in brain and kidneys. Also a recent gross cerebral hemorrhage in the hemisphere corresponding to the injury and in which the effects of contrecoup were most pronounced and in which also the vessels were most involved in inflammatory infiltration.

The author's conclusions are that the convulsions and mental symptoms were directly due to the lesions at the base, and that the convulsions hastened and intensified the pathological condition in the vessels and thus led to death from cerebral hemorrhage.

9. *Pathological Work at Independence, Iowa.*—The plans which have been outlined and followed for pathological and clinico-pathological work at this hospital are such that very little of value should escape observation. The work is all carefully classified and recorded by means of the card catalogue system.

10. *The Pathology of Insanity.*—The author refers to the gross pathological findings in fifty-six autopsies, made at Manhattan State Hospital, East, during the year ending September 30, 1900. With the exception of the paretics, where the findings in the several cases corresponded somewhat closely with each other, the conditions' were varied. For details the reader is referred to the tables accompanying the article.

11. *Idiopathic Unilateral Internal Hydrocephalus.*—The patient, a colored woman, aged seventy-four years, had several hemiplegic attacks of short duration, extending over a period of about fourteen months, and which were ascribed to cerebral embolism. The mental symptoms, for which she was admitted to the Central Indiana Hospital for the Insane, began with acute mania and terminated in dementia with occasional maniacal outbreaks. Death occurred in coma. The autopsy showed a dark area, seen through the dura, over the left parietal region. When the dura was removed there was a forcible escape of a light, straw-colored fluid, and the left hemisphere over the Rolandic area was considerably depressed. The convolutions were extremely flattened. When the brain was removed a wide gap was found in the temporal lobe which communicated with the opening made by the removal of the dura. The inner wall of the lateral ventricle could be seen through the gap. The dilatation was mainly in the descending horn of the ventricle and there were only about 7 mm. of brain tissue between it and the fissure of Sylvius. The left vein of Galen was only about one-third the size of the right. The choroid plexus on the left side was twice the size of the right and showed numerous nodulous masses attached to and within it. On microscopic examination these were found to be hyaloid masses. There was no other gross pathological condition found in the brain, except that here, as well as elsewhere throughout the body, there was marked calcareous degeneration in the blood vessels. The only causative

lesion found, is therefore, the left internal hydrocephalus due to the obstruction in the left choroid plexus.

12. *Letter from France.*—This refers to the colonization of the insane in families. The writer gives a summary of the scheme of family care of the insane as it exists today in France. The results, though in certain respects unsatisfactory, speak well for the plan.

H. L. WINTER (New York).

MISCELLANY.

HYSTERIA AND CRIME. F. NETRI (Archivos de Criminología, Medicina Legal y Psiquiatría, Year 1, No. 2, March, 1902).

The author, after reviewing the clinical manifestations of hysteria in relation to the possible commission of crime, from simple mendacity and simulation for the purpose of exciting sympathy and attention, to imaginary grievances, jealousies, religious exaltation and temporary mental alienation, adds susceptibility to hypnotic suggestion as a means by which the hysterical subject might be incited to crime by the evil-disposed; and concludes that many a prison should be closed and in place thereof refuges opened for the treatment of those whose abnormal mentality has led to crime through fleeting emotivity or grave psychic disturbance.

R. L. FIELDING (New York).

A CASE OF INFANTILE CEREBRAL PALSY WITH AUTOPSY FINDINGS. Dr. L. PIERCE CLARK and DR. T. P. PROUT (Journal of American Medical Association, April 26, 1902).

The lesions found at autopsy in old infantile palsy cases include such varied lesions as porencephaly, small and indurated convolutions, single or multilocular cysts and microgyria.

The whole hemisphere or cerebellum may show atrophy or non-development. There may be low-grade formative connective tissue, cysts, calcareous plaques, internal or external hydrocephalus. The following case of infantile cerebral palsy developing at two years of age is of interest. There was a history of fever, convulsions and great prostration for several days, paralysis of the entire right side. The arm remained permanently useless, in a condition of spastic rigidity. At the age of six, epileptiform crises developed. The patient became feeble minded and noticeably aphasic after the epileptic attacks. Death occurred at the age of 29 in a condition of stupor and delirium. The autopsy showed a bony formation two inches long attached to inner surface of the dura, considerable edema of the pia-arachnoid; left anterior central artery small; left central hemisphere softened, microgyria, cystic degeneration and pseudo-porencephaly of entire parietal region of the left side. Two cysts were as large as an English walnut. Secondly the cerebral lesion caused mal-development (fossæ) of the whole right cerebellar lobe, and extreme atrophy of the left thalamus and inferior olive. The cranial fossæ at the base also participated in the pathological condition.

W. B. NOYES (New York).

CASE OF BROWN-SÉQUARD'S PARALYSIS. ARTHUR R. EDWARDS (Journal of American Medical Association, March 15, 1902).

The following symptoms resulted from a stab in the neck in the median line posteriorly, from which cerebrospinal fluid was obtained. The right pupil was larger than the left. Paralysis of both upper extremities and left lower extremity, occurred. Tactile sensation was lost upon the right side, especially in the arm and leg, while upon the trunk the anesthesia did not quite reach the median line. Analgesia was abso-

lute upon the right side, as was the temperature sense of heat and cold. On the side of the hemiplegia there was no particularly marked hyperesthesia, save for pain on movement of the arm and leg, and extreme sensitiveness of the soles of the feet, and no genuine hyperesthetic zone. No anesthesia of left side, except small patches over left shoulder. The right knee-jerk was normal, while the left was much exaggerated and disappeared after twelve hours, and did not return for two weeks. The cremasteric, abdominal and mammillary reflexes were abolished on both sides. Retention of urine and absolute constipation for days occurred, after which involuntary evacuations of urine and stools persisted for eighteen days. There was a rise of temperature during the first week. A year after the injury the hyperesthesia on the left side had disappeared, while the anesthesia of the right side persisted, tactile sensation being normal. The left-sided, deep reflexes were exaggerated and the limbs were more or less spastic, but not atrophied.

The writer draws the following conclusions:

- (1) The lack of correspondence between hemispinal section in certain animals and in man is probably due to different anatomico-physiologic conditions.
- (2) The Brown-Séquard syndrome undoubtedly exists, although less an entity than a symptom.
- (3) Variations from the original type occur from etiological factors and with varying extent of the cut or other lesion.
4. The secondary temperature in the case reported was probably due to subsequent myelitis.
- (5) Few vasomotor symptoms were observed.
- (6) The contra-lateral anesthesia was not dissociated, but total, for all varieties of sensation, as in the original description of Brown-Séquard paralysis.
- (7) It was a typical case in the bilateral lesion, the crossed and persistent monoplegia, the shallow respiration and the bladder and rectal disturbance.
- (8) Spasticity, while often suggesting incomplete lesion and irritation, in that case was persistent, and suggested bilateral lesion.
- (9) While a diagnosis of hemato-myelia might have been made, the clinical history, with delirium, pain in the head and neck, with fever, indicated late myelitis.

W. B. NOYES (New York).

CEREBROSPINAL MENINGITIS DUE TO FRIEDLÄNDER'S PNEUMOCOCCUS.—K. Jassinger (Centralblatt für Bakteriologie, 1901, July 12).

Up to the present time this bacillus has been found in only a few cases of purulent cerebrospinal meningitis. The author cites a case occurring in a patient, sixteen years of age, who was suddenly taken ill with chills, followed by a permanent rise of temperature to over 101° F. There were present uncontrollable vomiting, intense headache, general muscular pains, profuse perspiration, irregularly contracted pupils and incontinence of urine and feces. Coma supervened and death took place on the seventh day. The clinical diagnosis was cerebrospinal meningitis, and upon autopsy the characteristic pathological lesions were found. A cover-slip preparation of the meningeal pus stained by methylene blue showed both intra- and extracellularly a short, round bacillus, sometimes occurring in pairs. The twenty-four-hour bouillon growth showed a general diffuse clouding with pellicle formation. Agar cultures showed a white surface growth and gelatin plates small, round, opaque colonies. Stab cultures in gelatin after forty-eight hours' growth showed a typical development along the line of inoculation.

No coagulation was produced in milk. Glucose was fermented. Gram's stain was not retained. The organism was pathogenic for mice in twenty-four hours by intraperitoneal inoculation, capsule bacilli being obtained from their heart's blood. He therefore regards the organism found as identical with Friedländer's pneumobacillus.

HIGLEY.

MYASTHENIA GRAVIS. E. Bramwell (Scottish Medical and Surgical Journal, 1901, May).

Bramwell gives the history of the first case of myasthenia gravis reported in Scotland, and 9 such cases have come under his notice; elsewhere 80 or 90 cases have been reported. It is often mistaken for hysteria. Rapid fatigue of the muscles is the prominent symptom. Rapid exhaustion by the faradic current constitutes the myasthenic reaction. The disease may be due to a toxin of endogenous origin, or some congenital defect in construction or mode of functioning of the neuromotor apparatus. In one-quarter of the recorded cases there has been a neuropathic tendency; some have followed acute infective diseases, which probably acted simply as predisposing agents. Prognosis is uncertain; the disease is often fatal, generally from dyspnea. A favorable prognosis should be given the patient, as psychic impressions exert considerable influence, while friends should be warned of the gravity of the case. The affected muscles should be spared and if symptoms are severe, the patient should be kept in bed. The larger portion of the food should be taken early in the day before fatigue occurs, solid food should be minced, faradism avoided though galvanism may be tried, and when dyspnea occurs the tongue should be drawn forward, oxygen saline transfusion and artificial respiration tried.

JELLIFFE.

THE ACTION OF ALCOHOL ON THE NEURONES. J. Arm and Kleefeld (Journ. de physiol. et path. gen., July, 1901.)

Observations along this line are important in that modifications of the central nervous system occasion alterations in respiration, circulation and temperature range. These experimenters trephined the parietal region of a rabbit's skull under antiseptic precautions and without the use of morphine, ether or chloroform. They then closed the wound superficially and after leaving the animal at rest for two or three days injected into the jugular vein 100 c.c. of a seven per cent. aqueous alcoholic solution. After two or three minutes they raised a portion of the cerebral cortex. This was fixed in a mixture of potassium bichromate and osmic acid and submitted to the rapid manipulation of Golgi. In the second series they introduced 100 c.c. of a 15 per cent. alcoholic solution into the stomach of rabbits and made similar examination of the cerebral tissue. Here the pathological changes were increased in amount over those found in the first series. As the result of this work, they conclude that the modifications produced by alcohol are not to be considered as a form of degeneration of nerve-cells, since the alterations appear in a very few minutes after the injection of the alcohol. The moniliform (beaded) state and disappearance of the piriform appendages are seen only in the finest protoplasmic prolongations and far removed from the cell-body. As the dose of alcohol is increased this condition augments and approaches the body of the cell. This appearance is characteristic and not like that produced by chloroform, morphine or chloral hydrate.

Certain prolongations remain absolutely normal even after large alcoholic dosage. The axis-cylinder submits to alterations only after very large dosage (100 c.c. of a 25 per cent. solution). The cell-body does not seem to be in any way changed. This is at variance with the views of Demoor and Stefanowska. These alterations are able to explain all the phenomena of inebriety. JELLIFFE.

ESSENTIAL MYOTONIA. A. Duse and Astolfoni (*Rivista sperimentale di Frenatria*, Vol. 26, fasc. 2, 3).

The history is given of a patient seventeen years of age, of marked neurotic heredity, who at first developed epileptiform convulsions, following head trauma. Eight days later these disappeared, but for three months the patient suffered from continuous migraine; following this myotonia appeared. This myotonia was of a wandering type. At first it involved the upper limbs, then the cervical muscles were affected and it finally became more or less permanent in those muscles of the right side of the neck innervated by the *recurrens*, the *facialis*, the *superior cervical plexus*, the *pharyngeal* and *superior and laryngeal nerves*. There was reaction to mechanical excitation and also the lacunar reaction of Benedict. The authors hold that the origin of the affection is cerebral and exclude an organic traumatic causation. COLLINA (Bologna).

CONTRIBUTION TO THE PHYSIOPATHOLOGY OF LANGUAGE. G. Mingazzini (*Rev. sperimentale di Frenatria*, 1901, Vol. 26).

The clinical history is given of a woman who during life showed symptoms of a cerebral tumor, but had never had any aphasia. On autopsy a sarcoma was found between the inferior and middle frontal convolutions on the left side. Much crushing and distortion of the convolutions was produced. From his study of the case, the author reasons that in the early stages of life the functions of language are common to both Broca's convolutions, but as age advances the functions of the right convolution become reduced and a concentration becomes marked in the left; so much so that the right convolution subsequently loses its functional (not its anatomical) relations with the verbo-acoustic centers of the left side. It maintains a quasi automatic center of language.

In the case under discussion the tumor was of slow growth and it was probable that during the long time of development of the tumor substitution of language function had taken place. COLLINA (Bologna).

Book Reviews

THE MENTAL STATE OF HYSTERICALS. A Study of Mental Stigmata and Mental Accidents. By PIERE JANET, Litt. D., M.D., Professor of Philosophy at the Collège Rollin. Translated by CAROLINE ROLLIN CORSON. G. P. Putnam's Sons, New York and London.

Mrs. Corson has performed a signal act of merit in giving to the medical public this excellent treatise of Janet. It has been known for many years by the French-reading physician, and its temperate and judicial handling of an extremely intricate problem has commended it to the respect and admiration of all.

Hysteria here is viewed as a generalized neurosis which affects the entire organization of the individual. It disturbs the physiological functions and thus gives rise to the many and varying somatic features of the malady; it disturbs the psychological functions and presents a protean group of mental symptoms.

The author would divide the study of hysteria into the consideration of two main groups. These he indicates in the first place as the more organic features of the disease, the *Mental Stigmata*; and secondly, as the *Mental Accidents* of the malady. Under the heading of mental stigmata are grouped, Anesthesias, Amnesias, Abulias, Motor Disturbances and Modifications of Character; while grouped as mental accidents are the phenomena of Suggestion and Subconscious Acts, Fixed Ideas, Attacks, Somnambulism and Delirium. A concluding chapter on Hysteria from a Psychological Point of View sums up in very short compass some of the most suggestive features of this intricate disease.

The translator has had singular felicity, we believe, in catching the idea of the author and in presenting in excellent English a noteworthy contribution to psychological medicine.

JELLIFFE.

DEMENZA PRECOCE. Per DOTT. LORENZO MANDALARI. A Tocca. Napoli.

Precocious dementia in its various varieties is in need of systematic and comprehensive revision. The present contribution aims solely to add to the facts which are slowly accumulating; it does not seek to generalize. It consists of a clear-cut series of clinical pictures.

JELLIFFE.

STUDII CLINICI ED ANATOMO-PATOLOGICI SULL'IDIOZIA. Per DOTTOR G. B. PELLIZZI, medico ordinaria a nel R. Manicomio, Docente di Psichiatria nell'università di Torino. Fratelli Bocco. Torino.

The author presents here three studies of idiocy. Idiocy and tuberous sclerosis; a classification of idiocy and epilepsy.

In the first study after an extended historical summary of the subject, brief histories of three patients are given followed by full discussion of the clinical and pathological features, thus making a monographic treatment of this rare development of sclerosis.

In the second study on the classification of idiocy, Bourneville, Hammarbergs and Kaes are carefully studied and compared. The author makes the following group.

Class I. Idiocy of pure defect of development of the cerebrum, or idiocy of endogenous causation; here are classed (1) microcephalus,

true and pure; (2) idiocy of irregular development, with three sub-groups: (A) idiocy with grave deformity of conformation, (a) defect of part of encephalon, (b) lack of hemisphere or lobe or convolution. (B) Idiocy of Agenesis without grave lesion of brain; (a) agenesis of convolutions, (b) partial agenesis of convolutions. (C) Hydrocephalic Idiocy.

(3) Idiocy of abnormal histology of cortex, (A) heterotopia of the cortex, (B) disseminated tuberous sclerosis, (C) diffuse hypertrophic sclerosis, (D) a type described by Roncoroni. Sachs' Congenital Amaurotic Idiocy falls in group C or D, according to the author.

(4) Idiocy of Cerebral Tumors, glioma or neuroglioma.

(5) Cretinoid Idiots. (A) Endemic and (B) Myxedematous.

Class II. Divided into five groups.

(1) Idiocy of pathological processes in the brain. (A) Idiocy of atrophic sclerosis (polioencephalitis of Strümpell, (B) Hydrocephalic idiocy of cerebral disease.

(2) Idiocy of pathological processes of the meninges. (A) Meningo-encephalitis, (B) Meningitic idiocy, (C) Hydrocephalic idiocy of meningeal disease.

(3) Idiocy due to pathological bony envelope, rachitic and scaphocephalic.

(4) Idiocy due to infantile disease—chorea, cerebral syphilis, disseminated sclerosis, paralysis agitans of children.

(5) Idiocy of trauma, at birth or after birth.

Class III. Mixed Forms of Idiocy.

(1) Idiocy of primary development with added pathological processes.

(2) Idiocy with pathological processes causing arrest of development in different parts of the brain.

Complete analyses of the clinical features of these types are given.

The third short study is a résumé of modern work bearing on this question. The volume is worthy of high praise. JELLIFFE.

NEUROLOGICAL TECHNIQUE. IRVING HARDESTY, Ph.D. University of Chicago Press.

This book, comprising 180 pages, will serve as a valuable introduction and laboratory guide, to the student endeavoring to perfect himself in the microscopical technic of the nervous system. All of the methods now in vogue, for the purposes of histological and pathological research, are treated clearly and concisely.

The description of each method is so arranged that the reagents required may be prepared first; then follow the necessary steps with the time allotted to each, thus allowing a considerable economy of time. Many practical suggestions are inserted, upon which the success of a method often depends, and usually learned from a teacher or by sad experience. The manner of preparing permanent museum specimens, the dissection of the central nervous system, and the nomenclature for the nervous system and special senses as devised by the Basel anatomical commission (B N A), are included.

The scope and manner of presenting the subject adapt it rather to the uses of the student than as a book of reference for the learned and trained technician.

J. R. HUNT.

News and Notes

DR. M. H. BOCHROCH has been made Demonstrator of Nervous Diseases in the Jefferson Medical College.

DR. ALFRED has been made Instructor of Nervous Diseases in the same institution.

DR. WILLIAM P|CKETT has been made Instructor in Insanity in Jefferson Medical College.

DR. J. G. ELL|OTT, Assistant Physician in the Hudson River State Hospital, died on May 12, 1902. He was of English birth, aged thirty-one years, and graduated from the University of Buffalo in 1896.

DR. JOHN PUNTON, Editor *Kansas City Medical Index Lancet*, has been confined to his bed for the past three weeks with La Grippe. He is now fully recovered.

DR. DAVID SHIRES, of McGill University, has received the appointment of Professor of Nervous Diseases in the University of Vermont, Summer Session.

PROGRAM of the 28th Annual Meeting of American Neurological Society, held in New York, June 5, 6, 7, 1902.—Thursday, June 5. Morning session at half past nine. Address by the President, Dr. Joseph Collins, of New York; Contribution to the Study of Myospasms: Myokymia, Myoclonus Multiplex, Myotonia Acquisita, Intention Spasm, by Dr. George L. Walton, of Boston; Paramyoclonus Multiplex, Case Report, by Dr. F. W. Langdon, of Cincinnati; Disseminated Sclerosis Causing Ocular Palsies, and Spasticity with Lost Knee-jerks, Necropsy; Traumatic Myelitis causing Symptoms of Central Hematomyelia, Necropsy, by Dr. William G. Spiller, of Philadelphia; A Case of Combined Tabes and Disseminated Sclerosis, by Dr. Wharton Sinkler, of Philadelphia; Course of the Sensory Fibers in the Cord and Some Points in Spinal Localization as Shown by a Case of Partial Section of the Cord by a Stiletto, by Dr. Morton Prince, of Boston; The Present Condition of Six Cases of Exophthalmic Goiter after Thyroideectomy, by Dr. J. Arthur Booth, of New York; Autopsy in a Case of Adiposis Dolorosa, by Dr. F. X. Dermum and Dr. D. J. McCarthy, of Philadelphia; On Amaurotic Family Idiocy, with Report of Autopsy, by Dr. B. Sachs, of New York; Amyotrophic Lateral Sclerosis, Autopsy, with Study of the Neuron Degenerations, by Dr. Graeme M. Hammond and Dr. M. G. Schlapp, of New York; The Postero-lateral Scleroses, by Dr. Charles W. Burr and Dr. D. J. McCarthy, of Philadelphia; Report of a Transverse Lesion of the Mid-Thoracic Segments, excepting the Posterior Columns, by Dr. Adolf Meyer, of New York; Paralysis of all Four Limbs and of One Side of the Face, with Dissociation of Sensation, Developing in a Few Hours and Resulting from Meningo-nyelo-encephalitis, by Dr. Charles K. Mills and Dr. William G. Spiller, of Philadelphia; A Report of a Case of General Paresis, with Autopsy, by Dr. Stewart Paton, of Baltimore; Stereoscopic Study of the Brain, Illustrated, by Dr. L. A. Weigl and Dr. Edward B. Angell, of Rochester; Multiple Neuro-Fibromatosis, by Dr. Joseph Fraenkel and Dr. J. R. Hunt, of New York; Report of a Case of Spinal Cord Tumor, Fourth Cervical Segment, Operation, Re-

moval, by Dr. James W. Putnam and Dr. William C. Krauss, of Buffalo; A Case of Traumatic Paraplegia and Hysteria Major with Specimens, by Dr. C. L. Dana, of New York; Note on Cell Changes in a Case of Complete Compression of the Cord, by Dr. John Jenks Thomas, of Boston; Progressive Paralysis of all of the Extremities from a Focal Lesion of the Upper Cervical Cord, by Dr. F. X. Dercum, of Philadelphia; The Mechanism of the Plantar Reflex, by Dr. Philip Coombs Knapp, of Boston; Hemorrhage into the Medulla Oblongata (Contribution to the Anatomy of the Median Fillet). Br. Dr. D. J. McCarthy and Dr. F. Savary Pearce, of Philadelphia; Two Cases of Cerebral Abscess, with Presentation of Specimens, by Dr. William M. Leszynsky, of New York; Unilateral Internal Hydrocephalus, and Bilateral Contracture, from Inflammatory Exudate about the Foramen of Monro; Symptoms of Cerebellar Tumor caused by Internal Hydrocephalus from Occlusion of the Aqueduct of Sylvius, By Dr. William G. Spiller, of Philadelphia; A Case of Acromegaly with New Formation of Nerve-cells in a Split-off Part of the Nervous Portion of the Hypophysis; Demonstration of Specimens of Central Parenchymatous Degeneration and Remarks on the Clinical Symptom-complex, by Dr. Adolf Meyer, of New York; Vascular Diseases in their Relation to the Nervous System, by Dr. Edward D. Fisher, of New York; Arteriosclerosis of the Spinal Cord. By Dr. William Hirsch, of New York; Reynaud's Disease with Special Reference to the Etiology, Pathogenesis and Nosology, by Dr. B. Onuf, of New York; Acute Hemorrhagic Encephalitis, by Dr. Herman H. Hoppe, of Cincinnati; Herpes Zoster and Paralysis, by Dr. Philip Coombs Knapp, of Boston; Division of the Posterior Spinal Roots for Amputation Neuralgia, by Dr. Philip Coombs Knapp, of Boston; Narcolepsy, with Report of a Case, by Dr. E. D. Bondurant, of Mobile; Pseudo Epilepsies, by Dr. William Browning, of New York; The Overlapping of Hysteria and Epilepsy, by Dr. James J. Putnam, of Boston; A Severe Hysterical Contracture of the Leg, and Its Treatment, by Dr. Frank R. Fry, of St. Louis; A Case of Psycho Motor Epilepsy, by Dr. Ira Van Giesen, of New York; A Case of Meningo-Myelitis following Typhoid Fever, by Dr. Theodore Diller, of Pittsburg; A Study of the Case of Czolgosz, the Assassin of President McKinley, by Dr. Walter Channing, of Brookline; Three Cases of Insanity in which There Were Peculiar Motor Manifestations, by Dr. H. A. Tomlinson, of St. Peter; Neuropsychical Sequela of Operations, by Dr. Smith Baker, of Utica; Angioneurotic Edema, by Dr. Joseph Sailer, of Philadelphia.

Neoferrum

THE NEW IRON

MALTO-PEPTONATE OF IRON
& MANGANESE with MALTINE
(ARSENICATED)

A NEUTRAL, organic, assimilable, non-constipating form of iron combined with the valuable nutrient and starch-converter, Maltine (attenuated with high-grade sherry), and a minute amount of absolutely pure Arsenious Acid.

A Palatable and Rational Specific for the treatment of Anaemia, Chlorosis, Blood Impoverishment arising from whatever cause, Malaria, etc.

Neoferrum is to be preferred to *mere solutions* of the Pepto-Manganate and other forms of Iron, because it contains sufficient Maltine to exercise a distinct *digestive action on starches*, and embodies *easily assimilated nutriment instead of valueless and perhaps irritating and otherwise contra-indicated material*.

Introduced only to the Medical Profession in accordance with a long established policy which has secured for the Maltine Preparations the universal regard and unqualified endorsement of the Medical Profession.

THE MALTINE COMPANY
BOROUGH OF BROOKLYN, NEW YORK.

ORIGINAL ARTICLES TABLE OF CONTENTS

Remarks on Acute Myelitis, and Report of a Case of Tuber- lous Meningo-Myelitis. By Joseph Collins, M.D.....	705
Report of a Transverse Lesion of the Mid-Thoracic Segments Leaving Intact the Posterior Columns, and Causing Syringo- myelic Dissociation. By Adolf Meyer, M.D.....	715
A Case of Combined Sclerosis of the Spinal Cord. By Frederick T. Simpson, M.D.	722

SOCIETY PROCEEDINGS

NEW YORK NEUROLOGICAL SOCIETY, October 7, 1902.

A Case of Centralized Scleroderma (726), Myotonia or Hysteria,
(727), Radiographs of a Tumor of the Brain (728), A Case of Brain
Tumor (?) (728), A Case of Tabes with marked Bulbar Symptoms,
(728), Differential Diagnosis of Multiple Sclerosis (729), Arterial
Disease in Comparatively Early Life (730).

CHICAGO NEUROLOGICAL SOCIETY, April 2, 1902.

Definition and Pathology of Neuritis (732), Symptomatology, Dia-
gnosis and Differential Diagnosis of Neuritis (733), Treatment of
Neuritis, other than Surgical (733), Surgical Treatment of Neuritis
(734), Sciatica (735), Neuritis of the Fifth Nerve (736).

PERISCOPE

RIVISTA MENSILE DI PSICHIATRIA FORENSE, ANTROPOLOGIA CRIMINALE E
SCIENZE AFFINI. Vol. V, 1902, No. 1, January.

1 Tattooing of Criminals (739). 2 Diminished Responsibility (739).
Vol. V, 1902, No. 2, February.

1 Examination of Four Crania (739). 2 Asylums for the Insane
(739).

Vol. V, 1902, Nos. 3, 4 and 5, March, April, May.

1 Gypsies (740). 2 The Criminal Soldier (740). Tuberculosis and
Insanity (740).

NEUROLOGISCHES CENTRALBLATT. 1902, Vol. 21, No. 15, August 1.

1 Facial Spasm (741). 2 Experimental Psychoses in Dogs (741).

Continued on Page IV

LISTERINE

The standard antiseptic for both internal and external use.

**Non-Toxic, Non-Irritant, Non-Escharotic. Absolutely Safe,
Agreeable and Convenient**

LISTERINE is taken as the standard of antiseptic preparations: The
imitators all say, "It is something like LISTERINE."

BECAUSE of its intrinsic antiseptic value and unvariable uniformity,
LISTERINE may be relied upon to make and maintain surgically
clean—aseptic—all living tissues.

IT IS AN EXCELLENT and very effective means of conveying
to the innermost recesses and folds of the mucous membranes, that
mild and efficient mineral antiseptic, boracic acid, which it holds in per-
fect solution; and whilst there is no possibility of poisonous effect
through the absorption of LISTERINE, its power to neutralize the pro-
ducts of putrefaction (thus preventing septic absorption) has been most
satisfactorily determined.

A special pamphlet on catarrhal disorders may be had upon application.

For diseases of the uric acid diathesis:

LAMBERT'S LITHIATED HYDRANGEA

A remedy of acknowledged value in the treatment of all diseases of the
urinary system and of especial utility in the train of evil effects arising
from a uric acid diathesis. A pamphlet of "Clippings" of editorials on
this subject may be had by addressing—

LAMBERT PHARMACAL CO., SAINT LOUIS
Be assured of genuine Listerine by purchasing an original package.

**CAN YOU MATCH IT WITH
ANY OTHER VACCINE?**



I used about 1760 Vaccine Tubes (P.D.&Co) during the late smallpox epidemic; and although some of the primary cases required one or two revaccinations, all were ultimately successful. In every respect the Vaccine was entirely satisfactory.

There were no bad arms.—

S.E.Simmons, M.D., Norwalk, Ohio.

It's in the Virus!

Results like those of Dr. Simmons do not spring from chance or good fortune.

The explanation lies in the medium used— it's in the virus!

Our Aseptic Vaccine, as its name implies, is pure.
It is active It is safe.

Parker, Davis & Co.
Detroit, Mich.—U.S.A.

TABLE OF CONTENTS—Continued

3 Isolated Muscle Spasms (741).
1902, Vol. 21, No. 16, August 16.

1 Pupillary Inertia (742). 2 Multiple Neuritis and Basedow's Disease (742). 3 Spinal Cord Degenerations in Old Amputated Arm (742). 4 The Tract "X" (742). 5 Isolated Muscle Cramp (742).

REVUE NEUROLOGIQUE. 1902, Vol. 10, No. 10, May 30.

1 Multiple Sclerosis with Transitory and Recurring Symptoms (742). 2 Two New Cases of Lesions Confined to the (Bourrelet) of the Corpus Callosum (743). 3 A New Method of Cerebral Measurement (744). 4 A Parasite Found in the Blood of Epileptics (744).

1902, Vol. 10, No. 12, June 30.

1 Progressive Muscular Atrophy (745). 2 The Sensibility of the Skeleton (746). 3 Pellagra Accompanied by Retraction of the Palmar Aponeurosis (746).

ARCHIV. FÜR PSYCHIATRIE UND NERVENKRANKHEITEN. 1902, Vol. 36, Part I.

1 Recent and Old Brain Researches (747). 2 Contribution to the Pathology of Porencephaly (747). 3 Pachymeningitis Cervicalis Hypertrophica and Dementia in the Young (748). 4 Contribution to the Etiology of Periodical Psychoses (748). 5 Metastatic Abscesses in the Central Nervous System (748). 6 Diffuse Hemorrhagic Encephalo-myelo-meningitis (749). 7 Central Neurofibromatosis and Tumors of the Cerebello-pontine Angle (749).

RIVISTA DI PATOLOGIA NERVOSA E MENTALE. 1902, Vol. 7, fasc. 8, August.

1 Secondary Atrophy of Nerve Elements (750). 2 Polyclonia in Dementia Paralytica (750).

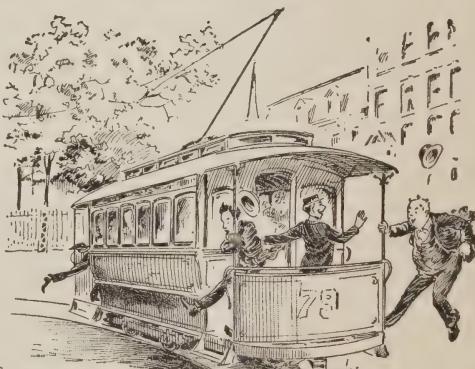
1902, Vol. 7, fasc. 9, September.

1 Neurology in the Choroid Plexuses (751). 2 Changes in the Nerve-cell in Iodoform Poisoning (751). 3 Contribution to the Study of the Hygic Illusion (751). 4 The Fasciculus of Pick (751).

NOUVELLE ICONOGRAPHIE DE LA SALPÉTRIÈRE. 15th Year, No. 3, May-June, 1902.

Hold Fast

To That Which Is Good!



WHEN a Physician learns by experience that a certain remedy produces positive results, he becomes familiar with its indications, limitations and therapy, and therefore wants no substitute or make-shift dispensed when he prescribes it.

When a Physician has for a long time prescribed

Pepto-Mangan ("Gude")

AS A BLOOD BUILDER IN

Anæmia, Chlorosis, Rickets, Amenorrhœa, Dysmenorrhœa, Chorea, Bright's Disease, &c.,
he knows by experience that it is a standard of therapeutic worth and wants no other.

BUT SOMETIMES THE PATIENT DON'T GET IT, DOCTOR!

To assure the proper filling of your prescriptions, order Pepto-Mangan "Gude" in original bottles.

IT'S NEVER SOLD IN BULK.

M. J. BREITENBACH COMPANY,
Sole Agents for United States and Canada.

LABORATORY:
LEIPZIG, GERMANY



SCHERING'S FORMALIN LAMP

FOR SICK-ROOM DISINFECTION AND DEODORIZATION.

SCHERING'S FORMALIN LAMP is unsurpassed for the Prevention of Contagious Diseases by chemical combination with their noxious principles. It energetically sterilizes, purifies and deodorizes the air, producing a pure, refreshing, and odorless atmosphere in the sick-room. It is invaluable in the Prevention and Treatment of **Catarrhs of all kinds, Influenza, Diphtheria, Measles, Scarletina, Whooping-cough, and other Zymotic Affections**, and is endorsed by the leading hygienists of the world.

By the use of Schering's Formalin Pastils, which are entirely innocuous, the danger of employing the caustic liquid Formalin is avoided.

BETA-EUCAIN

A LOCAL ANÆSTHETIC FULLY EQUAL TO COCAIN, AND FREE FROM ITS DISADVANTAGES AND DANGERS.

IT is four times less toxic than the older drug, and no dangerous symptoms have ever resulted from its use. According to Dr. H. Braun of the University of Leipsic, Beta-Eucain is to be preferred to cocaine in **infiltration anaesthesia** because it is less poisonous and less irritant, and because its solutions are permanent and can be boiled as often as is required. For application to **mucous membranes** when local ischaemia is desired it should be followed by or combined with suprarenal extract.

GLUTOL-SCHLEICH

THE BEST DRY DRESSING FOR WOUNDS AND BURNS.

GLUTOL or FORMALIN GELATIN is an odorless, unirritating and non-poisonous powder causing a slow continuous liberation of Formalin when brought in contact with living body cells. It forms a firm scab on clean wounds in a few hours, rendering further disinfectant measures unnecessary; in infected wounds it rapidly checks pus formation. It can be freely used in the peritoneal or other serous cavities. Glutol has been adopted in many German Fire Departments as the very best dry dressing. Its application is painless, and it is used in very small quantities.

UROTROPIN

THE SAFEST AND MOST EFFICIENT URINARY ANTISEPTIC.

UROTROPIN has achieved a unique position as a urinary antiseptic and a uric acid and calculus solvent. It sterilizes the urine, causes the disappearance of micro-organisms, blood, mucus, pus, uric acid and urates, and exercises a healing effect upon the inflamed mucosa of the entire genito-urinary tract.

Urotropin has been found extremely valuable in **Cystitis** of all kinds, Bacteriuria, Phosphaturia, Pyelitis, Pyelonephritis, and Irritable Bladder from any cause. It is a powerful antidote to the **Urinary Poisoning** that so frequently occurs in Suppurative affections of the Genito-urinary Passages, and should be employed before and after Instrumentation and Operation of this region to forestall infection. It should be administered in every case of **Typhoid Fever** to remove the specific bacteriuria that so frequently occurs and to prevent spread of the infection.

Schering's Glycerophosphates,

NERVE TONICS AND STIMULANTS,

ENJOY an extended reputation in the treatment of neuralgia, phosphaturia, phosphatic albuminuria, sciatica, diabetes, scrofula, and rickets, in convalescence, and generally in the treatment of anaemic and neurasthenic conditions. They are **guaranteed to be true glycerophosphates**, and not mere phosphates.

ARGENTAMINE

A NON-IRRITATING SUBSTITUTE FOR SILVER NITRATE.

OF greater antibacterial power than any other of the newer silver preparations. Its very vigorous penetrative properties render it the most eligible of all where deep-seated disease foci are to be attacked.

SCHERING & GLATZ, 58 Maiden Lane, New York,

Literature furnished on application.

Sole Agents for the United States.

TABLE OF CONTENTS—Continued

1 Cerebral Neoplasm (752). 2 Rare Monstrosity of Face and Head (752). 3 Psychasthenic Syndrome of Akathesia (752). 4 Biological Life of a Xyphophagus (753). 5 Hemimelia of the Right Lower Extremity (753). 6 Eunuchism of a Family Type (753).
1902, No. 4, July-August.
1 Verbal Blindness (753). 2 Hallucinations of Hearing in General Paralysis (754). 4 Katatonia and Dementia Præcox (754). 5 Multiple Exostoses (755).
ARCHIVES DE NEUROLOGIE. 1902, Vol. 13, No. 78, June.
1 Hemianopsia (755). 2 Psychology of Genesis of Psychomotor Hallucinations (755). 3 Conjugal General Paralysis (757).
1902, Vol. 14, No. 79, July.
1 Treatment of Vertiginous Epilepsy (757). 2 Action of Valerian and Valerianates (757).
1902, Vol. 14, No. 80, August.
1 Papilloma of the Red Nucleus (757). 2 Infantile Tremors and Congenital Nystagmus (758). 3 A Case of Epileptic Delirium (758). The Hysteria of Saint-Theresa (759).
NEUROLOGISCHE CENTRALBLATT. 1902, Vol. 21, No. 17, September 1.
1 Tabes and Achilles Reflex (759). 2 Syphilitic Epilepsy (759).
3 Dietetic Treatment of Epilepsy (759).
1902, Vol. 21, No. 18, September 16.
1 A Distinct Nucleus in the Formatio (700). 2 Lumbo-Femoral Reflex (700). 3 Myotonic Pupillary Movements (700). 4 Infraspinalis Reflex (700). 5 Supra-orbital Reflex (700).
MISCELLANY.
Carcinosis of the Central Nervous System (759). Reflex Spasm Caused by Ascaris (759). Focal Facial Epilepsy (760). Toe Reflex (760). Rest in Bed in Epileptic Delirium (760).

BOOK REVIEWS

Nervous and Mental Diseases (761). La Démence Précoce (761).

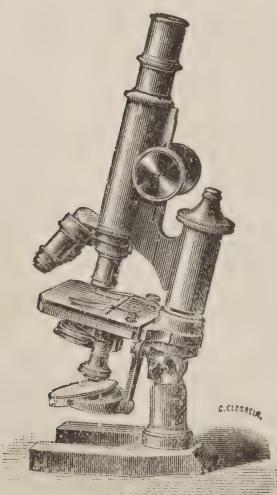
NEWS AND NOTES

762

LEITZ'S

MICROSCOPE II C.

The Best for Physicians' use. Prices ranging from
\$50. to \$100, according to Outfit.



COMPLETE LINE OF
MICROSCOPES
MICROTOMES
DISSECTING MICRO-
SCOPES

Catalogues and price lists sent on application.
Duty free prices to Educational Institutions.

New York:
411 W. 59th Street

ERNST LEITZ

Chicago:
32 Clark cor. Lake St.

WOMEN suffering from an Aching Back, Bearing down Abdominal Pains, or any abnormal condition of the Uterine system, should be given ALETRIS CORDIAL RIO in teaspoonful doses four times a day.

Rio Chemical Co.
New York

ETHYL CHLORIDE (BENGUÉ)

For Analgesia in Painful Affections

HEADACHE, NEURALGIA OF THE FACE AND NECK, INTERCOSTAL NEURALGIA, LUMBAGO, SCIATICA, WRY NECK, PAINFUL JOINTS.

PUT UP IN SPECIAL TUBES.
ORDER BENGUE'S

PRICE \$1.00

LITERATURE ON APPLICATION

Thos. Leeming & Co.

73 WARREN STREET,
NEW YORK

THE ALKALINITY OF BLOOD SERUM

GLYCO- THYMOLINE

(KRESS)

ASEPTIC
ALKALINE, ALTERATIVE

A Purgative for Mucous Membrane

INDICATED IN ALL CATARRHAL CONDITIONS

HASTENS RESOLUTION
FOSTERS CELL GROWTH

SAMPLES AND LITERATURE ON APPLICATION



KRESS & OWEN COMPANY, 221 Fulton St., New York.

DIRECTORY FOR PRIVATE INSTITUTIONS

OAK GROVE

A Comfortable, Homelike Hospital for the care of a limited number of cases of Nervous and Mental Disease, Inebriety, and Drug Addiction

The Hospital consists of six buildings connected by glass corridors. Apartments for patients are commodious, sunny and tastefully furnished. Special attention is paid to hydrotherapy and electrotherapy. Turkish and Russian baths are administered by nurses skilled in massage. Artesian wells supply an abundance of pure water. A flowing well furnishes an alkaline mineral water of therapeutic value.

For terms and further information, address

C. B. BURR  Medical Director  **FLINT, MICH.**

The Grounds
Comprise 60
acres of State-
ly Oaks :: ::

Long Island Home Limited

Dr. O. J. Wilsey, Physician in charge

Two Assistant Physicians—a man and a woman.

For Mental and Nervous Diseases, Alcohol and Drug Habitues
Voluntary Patients Received.

Special Features—Horses and carriages for the free use of patients; orchestra and frequent entertainments. Turkish baths, bowling alleys and gymnasium, croquet, tennis, billiards and pool; yachting on the Great South Bay.

Rates—Minimum, \$10 per week; special nurse, \$25; cottage from \$50 up.

Our new cottage is luxurious, select, and private.

Monday, Wednesdays and Fridays from 1.30 to 2.30 p.m., No. 143 East 37th St.
N. Y. City.

Telephone Number 2955 38th St. Telephone Number at the Home 2 M, Amityville.

at Amityville, Long Island, N. Y.
On the Great South Bay

The Milwaukee Sanitarium

Wauwatosa, Wis.

For Nervous and Mental Diseases

Wauwatosa is a suburb of Milwaukee on the Chicago, Milwaukee and St. Paul Railway, 2½ hours from Chicago, 5 minutes' walk from all cars and trains.

Physician in charge: RICHARD DEWEY, A.M., M.D.

CHICAGO OFFICE, 34 Washington St., Wednesdays 11:30 to 2 o'clock (except in July and August). Telephone connections, Chicago and Milwaukee.

The HIGHLANDS

A retreat for the care of Nervous Invalids with mild Mental and Nervous Diseases, the Alcohol and Opium habits. Conducted on the plan of a Family Home in the Country. Established by Ira Russell, M.D., in 1875. For circulars, terms, etc., address **Frederick W. Russell, M.D., Winchendon, Mass.**

“Bournewood”

Dr. Henry R. Stedman

having removed to his new buildings in Brookline, Mass., will continue to receive patients with nervous or mental diseases for separate treatment or family care. Number limited to fifteen. Cases of the Alcohol habit not received. P. O. address South St., Brookline Nearest station, Central, on the Providence Division of the N. Y., N. H. & H. R.R. Office in Boston: 33 Marlboro Street. Hours 10 to 12 Monday, Wednesdays, and Fridays, October to July.

FALKIRK

James F. Ferguson, M.D.

Resident Physician and Proprietor

On the Highlands of the Hudson, near Central Valley, Orange Co., New York. A Home for treatment of nervous and mental diseases, and the alcohol and opium habits.

Falkirk is 800 feet above the sea level; the grounds cover 200 acres, are well shaded and command a magnificent view. The buildings are steam-heated and lighted by gas; the water supply from pure mountain springs. All the rooms face the southwest, the best methods in sewerage have been followed, and the arrangements for comfort and recreation include a sun-room, steam-heated in winter.

Dr. Ferguson may be consulted at his office, 168 Lexington Avenue, New York City, Tuesdays and Fridays, between 11.30 a.m., and 12.30 p.m., and by appointment, or may be addressed at Central Valley, Orange County, New York.

Central Valley Orange County New York

Long Distance Telephone, "Central Valley, New York."

Dr. Wm. B. Fletcher's Sanatorium

For care and treatment of Nervous and Mental Diseases. Special treatment of Diseases of Women by Dr. Mary A. Spink. For further information address Dr. Wm. B. Fletcher, 218 North Alabama St., Indianapolis, Ind. Long Distance Telephone, 381.

INDIANAPOLIS, INDIANA.

The St. Winifred Hospital

1025 Sutter Street, San Francisco, Cal.

A new fire proof Hospital with fifty sunny rooms. Centrally located. The most modern operating rooms in the West.

A Private Sanatorium for medical and surgical cases.

Winslow Anderson, M.D., M.R.C.P. Lond.

Medical Director.

Norwood Private Hospital

For Mental and Nervous Diseases

Accommodation for ten patients. Alcohol and drug cases not taken. Licensed and established in 1888. Railroad station, Norwood Central. P. O. Address,

Eben C. Norton, M.D.

Norwood, Mass.

Directory for Private Institutions.

The New York Institution for the Treatment of

Stammering

In this institution for the relief of speech defects, now in its twentieth year, the celebrated French and German methods are utilized, improved by the suggestions of a progressive American physician. No misleading promises are made, yet no one is allowed to lead us in information or the best methods of treatment for such affections, where drill in articulation and the technique of speech, or minor surgical operations, are indicated. Physicians may retain charge of patients sent, if desired. Suitable cases may reside in the institution and be under the doctor's constant care. For outline of treatment and testimonials from eminent men and pupils, ask for our new illustrated pamphlet.

F. A. Bryant, M.D. 12 W. 10th Street, New York

For nearly 20 years at 9 W. 14th Street

Private Hospital for Mental Diseases

Cor. Boylston St. and Chestnut Hill Avenue.

Established 1879.

WALTER CHANNING, M.D.

Superintendent.

Brookline Near Boston

Massachusetts

• Burn Brae

A Private Hospital for Mental and Nervous Diseases.

Founded by Robert L. Given, M.D. in 1859
Extensive and beautiful grounds. Perfect privacy. Located a few miles west of Philadelphia.

Refers by permission to Drs. R. A. F. Penrose, James Tyson, Charles K. Mills, Wharton Sickler, William Osler, Thomas G. Morton, Bartolo Cooke Hirst, John H. Musser, Alfred Stengel, James Hendrie Lloyd, John A. Ochterlony, John Deaver, W. Lassiter.

Proprietor, E. L. Given; Medical Superintendent, N. S. Yawger, M.D.
For full information address

BURN BRAE,
Clifton Heights, Delaware Co., Pa.
Telephone Connection.



Dr. Kellogg's FOR THE CARE AND TREATMENT OF NERVOUS AND MENTAL DISEASES House

Under State License.

Select Cases and Limited Number

Modern appointments and handsome surroundings.
Committed or voluntary patients received. Trains

hourly to Riverdale Station, Hudson River Railroad, or Van Cortlandt Station, Putnam R. R. Address letters or telegrams to Dr. Theo. H. Kellogg,

Corner Riverdale Lane and Albany Post Road

N. Y. City Telephone, 36 Kingsbridge Riverdale, New York City

The Westport Sanitarium

For the care and treatment of nervous and mental diseases, with special attention to chronic nervous cases. Modern appointments; home life; beautiful surroundings; large private grounds. Private attendants and cottage care if desired. Committed or voluntary patients received. No accommodations for alcoholics. For information and terms address Dr. F. D. Ruland, Medical Superintendent. Wednesday, in New York City, 10 a.m.-12.30 p.m., at 47 East 78th Street. Long distance telephone at both addresses.

Established 1890

Westport, Connecticut

Directory for Private Institutions.

Cromwell Hall

"Health School" and private establishment for the Medical and Hygienic Treatment of Invalids. Neuroasthenia and general invalidism are treated by the educational method combined with the necessary therapeutic and hygienic methods. Out-of-door living by means of cots, tents and permanent cabins is a special feature. Insane, objectionable and incurable cases are not received. Dr. Frank K. Hallock, Medical Director; New York Office, 819 Madison Avenue, first Tuesday in month, 2 to 4 p.m.; Boston Office, Hotel Vendome, third Tuesday in month, 2 to 4 p.m. **Cromwell, Near Middletown Connecticut**

The Richard Gundry Home....

HARLEM LODGE, Established 1891

A well equipped Sanitarium for the treatment of nervous and mental diseases, selected cases of alcoholic and opium habitues, and the various diseases requiring removal from the environments of home.

For rates, address

Dr. Richard F. Gundry



Catonsville, Baltimore County, Maryland.

Long Distance Telephone 94 Catonsville

REFERENCES

Dr. Landon B. Edwards, Richmond, Va.

Dr. Henry M. Hurd, Baltimore, Md.

Dr. Geo. J. Preston, Baltimore, Md.

Dr. Wm. F. Drewry, Petersburg, Va.

Dr. Howard A. Kelly, Baltimore, Md.

Dr. P. A. Murphy, Morganton, N. C.

Dr. J. Allison Hodges, Richmond, Va.

Dr. Francis T. Miles, Baltimore, Md.

Dr. William Osler, Baltimore, Md.

€

BROOKLYN HOME

174 St. Mark's Avenue, Near Prospect Park

FOR NARCOTIC IN-
EBRIATES, OPIUM,
CHLORAL, COCAIN.

Dr. J. B. MATTISON, Medical Director

Patients six, select. Treatment modern, HUMANE, effective. PERFECT PRIVACY and EXCLUSIVE PERSONAL, PROFESSIONAL attention, based on 30 years' experience in the study and treatment of this disease.

Hall-Brooke

A Licensed Private Hospital for Mental and Nervous Diseases

CASES OF ALCOHOLISM AND THE DRUG HABIT

An inviting Hospital for the care of acute mental diseases, with a refined home for the chronic mental invalid. The location is unsurpassed for healthfulness and charming environment. Committed and voluntary patients received from any locality. A separate department for drug cases. For detailed information and rates, address:

New York Office with

DR. LAWRENCE

784 Park Ave.

Hours 12 to 1.30, and by appointment

DR. D. W. McFARLAND

GREEN'S FARMS, CONN.

CONSULT THIS

Directory for Private Institutions

The largest, most complete and the most reliable published.

LIST OF PATRONS TO DIRECTORY

Anderson, Dr. Winslow—St. Winifred Hospital.....	9
Brownrigg, Dr. A. E.—Highland Spring Sanatorium.....	15
Broughton, Dr. R.....	14
Bryant, Dr. F. A.—School for Stammerers.....	10
Burr, Dr. C. B.—Oak Grove, Flint, Mich.....	8
Channing, Dr. Walter—Private Hospital for Mental Diseases.....	10
Coe, Dr. Henry W. and Gillespie, Robert L.—Mt Tabor Sanitarium	14
Crothers, Dr. T. D.—Walnut Lodge Hospital.....	14
Cukier, X.—Hydriatic Institute.....	16
Deweys, D. R.—Wauwatosa, Wisc.....	8
Dold, Dr. W. E.....	16
Edes, Dr. Robert T.—Warren Chambers, Boston.....	13
Fitch, Dr. A. L.—Cedarwild Sanitarium.....	18
Ferguson, Dr. James Francis—Falkirk.....	9
Fletcher, Dr. W. B.....	9
Foster, Dr. C. A.—Grandview Sanitarium.....	16
Gorton, Dr. Eliot—Fair Oaks.....	18
Gundry, Dr. Richard F.—The Richard Gundry Home.....	11
Hallock, Dr. F. K.—Cromwell Hall.....	11
Hitchcock, Dr. H. M.—Crest View Sanitarium.....	14
Jackson, Dr. J. Arthur—The Jackson Sanatorium.....	13
Kellogg, Dr. Theo. H.....	10
Kindred, Dr. J. J.—Astoria, L. I.....	16
Leffingwell, Wm. E.—The Glen Springs.....	13
Lockwood, Miss Ada.....	15
Mattison, J. B.....	11
Murden, Miss L. E.....	13
McFarland, Dr. D. W.—Hall-Brooke.....	11
Norbury, Dr. Frank Parsons—Maplewood.....	14
Norton, Dr. E. C.....	9
Parsons, Dr. Ralph W.—Greenmont-on-the-Hudson.....	13
Patterson, Dr. C. E.—The Patterson Home.....	8
Perry, Dr. J. Frank—Blue Hills Sanitarium.....	18
Pettey, Dr. Geo. E.....	18
Phillips, Dr. J. Willoughby—Burn Brae.....	10
Punton, Dr. John, Kansas, Mo.....	15
Riggs, Dr. Geo. H.—Riggs Cottage.....	12
Ruland, Dr. F. D.—Westport Sanitarium.....	10
Russel, Dr. Fred. W.—Highlands.....	8
Sprague, G. P.—High Oaks Sanitarium.....	14
Stedman, Dr. Henry R.—Bournewood.....	9
Sylvester, Dr. W. E.—College Point.....	16
Wilsey, Dr. O. J.—Long Island Home.....	8

Riggs Cottage

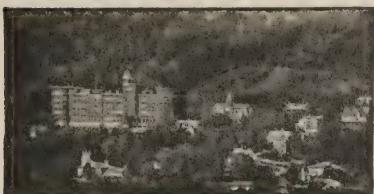
A private Institution for the care and treatment of Invalids and Mild Nervous and Mental Diseases, located in one of the healthiest sections of Maryland. Patients are surrounded with the attention and comforts of a refined country home. For Circular, Terms and References, address

GEORGE H. RIGGS, M.D.

Ijamsville, Frederick County, Md.

Directory for Private Institutions.

"Health by Right Living"



The Jackson Sanatorium

Dansville, Livingston Co., N. Y.

J. ARTHUR JACKSON, M.D., Secy. and Mgr.

The Glen Springs

medical supervision. All approved forms of Hydrotherapy, including Hot Neptune Brine Baths and Carbonated Brine Baths (the Schott treatment) as given at the celebrated Nauheim Baths for Gout, Rheumatism, Neuralgia, Sciatica, Diseases of the Nervous System, and of the Heart and Kidney. Also Electricity in every form, Massage, Swedish Movements, Turkish and Russian Baths. Valuable Mineral Springs Muriated, Alkaline, Chalybeate, Iodo-Bromated and Brine, especially efficacious in Disorders of Digestion, Gouty Conditions, Diabetes, Anemia, Nervous Diseases and Chronic Affections of the Kidney. Climate Mild, Dry and Equable. No Malaria. No Hay Fever. Location overlooks thirty miles of Seneca Lake. Sixty acres of private park. Golf links, tennis courts, bowling alleys, etc. All the appointments of first-class hotel. No insane or other objectionable cases received. Correspondence with physicians solicited. Send for illustrated book. Wm. E. Leffingwell, President, Watkins, N. Y.

A health resort of the highest class. The most complete and modern bathing establishment in America, under skilled

CUISINE OF THE VERY BEST—Hydrotherapy, dietary, massage, electricity, Swedish movements, Nauheim baths, Sprague's hot air baker, Moliere thermo-electric bath, rest cure. For literature and information address,

Watkins Glen, N. Y.

Miss Murden's Home

Miss Murden will reopen her private house for the treatment of nervous diseases by means of the rest-cure, electricity, water treatment, massage, etc. on Wednesday, October 15, 1902.

68 West 38th Street, New York City

Greenmont-on-the-Hudson

FOR NERVOUS and
MENTAL DISEASES.

RALPH LYMAN PARSONS, M.D.,

City Office:
21 East 44th St., Mondays and Fridays
from 3.30 to 4.30 p.m.

RALPH WAIT PARSONS, M.D.

Ossining, N. Y.

Long Distance Telephone 162-B Ossining, N. Y.

DR. ROBERT T. EDES.

Warren Chambers, 419 Boylston St., BOSTON, MASS.

will receive medical cases, not insane, at his residence,

3 Revere St., Jamaica Plain, Boston.

Directory for Private Institutions.

Walnut Lodge Hospital Hartford Conn.

Elegantly situated in the suburbs of the city, with every appointment and appliance for the treatment of this class of cases, including Turkish, Roman, Saline and Electric Baths. Each one comes under the direct personal care of the physician, and experience shows that a large proportion are curable. This institution is founded on the well-recognized fact that inebriety is a disease, and all cases require rest, change of thought and living, in the best surroundings.

Applications and all inquiries should be addressed to **T. D. Crothers, M.D.** Supt. Walnut Lodge, Hartford, Conn.

New York Office, 115 W. 49th St.,
The first Tuesday of every month from
12 M. to 5 P.M.

Alcohol, Opium and other
Drug Inebriates

Crest View Sanitarium



GREENWICH, CONN.

A quiet, refined home for the treatment of chronic nervous diseases. No violent cases admitted. In the midst of beautiful scenery, 28 miles from New York.

H. M. Hitchcock, M.D.

Dr. Geo. P. Sprague, Lexington,
Receives at **Kentucky**

High Oaks Sanitarium

For scientific treatment, cases of Mental and Nervous Diseases, including those of liquor and drug addiction. Number limited to fifteen.

Mt. Tabor "Minds Ease" Sanitarium [Nervous, Drug
and Mental Diseases

Cases classified and segregated. The mild, equable humid climate is often of value in the relief of Nervous states, notably of the insomnia of neurasthenia.

Office, The Marquam,
Portland, Oregon

Dr. Henry Waldo Coe,
Dr. Robt. L. Gillespie, Medical Directors

MAPLEWOOD DR. NORBURY'S SANATORIUM
For Nervous and Mental Diseases]

Will receive for private treatment, cases of mental and nervous disease and select habit cases. Modern facilities and conveniences; desirable location. Number of patients limited.

CONSULTING STAFF: **Frank R. Fry, M.D.**, St. Louis. **C.G. Chaddock, M.D.**, Louis
Hugh T. Patrick, M.D., Chicago

FRANK PARSONS NORBURY, M.D., 420 State St., JACKSONVILLE, ILL.

Dr. Broughton's Sanitarium ROCKFORD, ILL.

For the care of Opium and other Drug Addictions, including Alcohol and special nervous cases.

Address: R. BROUGHTON, M.D.,
2007 S. Main St., Rockford, Ills.

Directory for Private Institutions.



A PRIVATE HOME FOR NERVOUS INVALIDS

A new and elegant home Sanitarium built expressly for the accommodation and treatment of persons suffering from the various forms of nervous and mental diseases such as neurasthenia, hysteria, melancholia, chorea, migraine, locomotor ataxia, aphasia, the different varieties of paralysis, together with incipient brain diseases.

The building is located in the most aristocratic residential portion of Kansas City, Missouri, immediately facing Troost Park and within easy access to electric and cable cars to all parts of the city, besides being furnished with all modern conveniences and the most approved medical appliances for the successful care and treatment of nervous and mental disease.

Reference: Any member of the regular profession in the Central States. Strictly Ethical Institution.

For further particulars apply to

JOHN PUNTON, M.D., Kansas, Mo.

Resident Physician,

Office Rooms, 531, 532 and 533, 3001 Lydia Ave., Altman Bldg
(No noisy or violent patients received.)

Highland Spring Sanatorium

Among the Hills of New Hampshire, one hour's ride from Boston. New buildings, ideal surroundings, modern treatment for all kinds of medical cases, not infectious nor violently insane. Number limited. For terms and particulars address,

Robt. T. Edes, M.D., Medical Director,
Warren Chambers, Boston, Mass.

Albert E. Brownrigg, M.D., Supt. and
Treas., Nashua, N. H.



“GRAND VIEW” Sanitarium

SO. WINDHAM,
CONN.

Dr. C. A. FOSTER, Physician in Charge

A private Sanitarium for the scientific treatment of **nervous and mild mental diseases** with separate department for alcoholic and drug addictions. Sanitarium located on the Obwebetuck Mountain, with southeastern exposure, affording unsurpassed landscape and river views. Magnificent bath equipment, consisting of **Turkish, Russian, Roman** **Ne dle, Douche and Plunge**. Commodious and well equipped gymnasium. Steam heat, lighted by gas. Three hours from New York City, two hours from Boston. Long distance telephone 43-2 Willimantic. Address,

GRAND VIEW SANITARIUM, & **SO. WINDHAM, CONN.**

New York Office with

Dr. SHIRLEY ERVING SPRAGUE,
162 West 46 St. Telephone 1055 38th Street
Hours, 9-11 A. M., 5-7 P. M.

Brooklyn Office with

Dr. L. J. MORTON,

303 Henry St. Corner State St. Tel., 1550 Main.
Hours, Wednesday, 9-12 M. or by Appointment.

SCIENTIFIC TRAINING FOR....



Stammering and Other Speech Defects

MISS. ADA LOCKWOOD

432 Fifth Avenue, New York

References:—Dr. G. Hudson Makuen, of Philadelphia, Pa.; Dr. Byrson D. Delavan, Dr. Frederick Peterson, Dr. Frank E. Miller, Dr. Joseph Collins, Dr. James E. Newcomb, Dr. Smith Ely Jelliffe, Dr. M. Allen Starr, of New York City.

Directory for Private Institutions.

RIVER CREST

(Duly Licensed by the State Commission in Lunacy.)

ASTORIA, L. I.

NEW YORK CITY

For Mental and Nervous Diseases including Committed Cases and Voluntary Patients

A WELL equipped home, situated in the elevated, residential portion of Astoria, L. I., New York City, opposite the foot of 121st Street, and 1½ miles from the 92nd Street (Astoria) Ferry. THE LOCATION, in a beautiful natural park of 30 acres is a fine one, commanding views of East River, Long Island Sound, the Grant Monument, and the City. There is an attractive central building, with several roomy annex cottages, affording accommodations at a very moderate rate, or expensive suites of rooms. There are separate, detached buildings, specially equipped for the modern care and treatment of cases of **Alcoholism, Drug Addictions and Nervous Diseases.**

Physicians are invited to inspect our system of **Electrotherapeutics** and **Shower Baths**, so valuable in the scientific treatment of many diseases.

For information and rates address:

NEW YORK CITY OFFICE:

J. JOS. KINDRED, M.D.

WM. E. DOLD, M.D.

1125 Madison Avenue

Consulting Physician

Physician in Charge

Cor. 84th St.

and Business Manager

HOURS 2 to 3 P. M.

TELEPHONE 36-ASTORIA.

... KNICKERBOCKER HALL ...

COLLEGE POINT, NEW YORK CITY

TELEPHONE 63, COLLEGE POINT

A private Sanitorium for the care and treatment of neurasthenia, neurotic disorders, mild mental diseases, inebrity, drug addiction and those requiring recuperation and rest.

Situated upon the shore of Flushing Bay, amid a beautiful and well-shaded park, it commands an unsurpassed view of the East River, Long Island Sound, New York City, and the surrounding country. It is easily accessible from Manhattan by carriage, via East 99th St. ferry; and by railroad or trolley from East 34th St. From Brooklyn it can be reached by either carriage or trolley.

New York Office, 306 West 55th Street, 10.30 to 11.30 A.M.

TELEPHONE, 1697 COLUMBUS

For terms, etc., address,

WILLIAM E. SYLVESTER, M.D., Medical Director

Dear Doctor:-When tonic, stimulating effect is indicated, no doubt Hydrotherapy is most useful. In cases where elimination of uric acid is desired, Hot Air Treatment and local Scotch Douche will prove beneficial.

You prescribe the best modern method of HYDROTHERAPY for your patient, by referring him to the HYDRIATIC INSTITUTE (The Nevada, 2,025 Broadway, N. Y.). Yours very truly,

X. CUKIER.

NEURILLA is a reliable and harmless CALMATIVE.
INDISPENSABLE in the treatment of NERVOUSNESS.

Dose: teaspoonful every hour, or in bad cases every half hour until nervousness is abated, then, four times a day.—Teething Children:—5 to 20 drops as indicated.

Neurilla contains the essential active principles of scutellaria and aromatics.

DAD CHEMICAL CO., New York and Paris.

FAIR OAKS SUMMIT, N. J.

For the care and treatment of nervous diseases, selected cases of mental alienation, drug and alcohol addictions. Voluntary cases preferred. Twenty miles from and the highest point within thirty miles of New York City. The institution is well equipped with modern apparatus. 72 trains daily to and from New York. The nervous invalid will find Fair Oaks an ideal place for rest and recuperation. Address,

Dr. Eliot Gorton
(for fourteen years First Assistant Physician to the New Jersey State Hospital at Morris Plains), Summit, N. J.

L. D. Phone 143



DR. PETTEY'S SANITARIUM

FOR THE TREATMENT OF
Alcohol and Drug Addictions

Personal care for limited number of select cases. Private home accommodations. All craving for drug or liquor is destroyed. Treatment is harmless, comparatively painless and time required is short

GEO. E. PETTEY, M.D., 958 Davie Ave., Memphis, Tennessee.

CEDARWILD

A Sanitarium for invalids and neurasthenics. Mild cases of insanity treated. Violent patients not desired.

Location Convenient
Grounds Commodious
Terms Reasonable

ADDRESS:

Alice Lyon Fitch, M.D.
DARIEN, CONN.

The Blue Hills Sanitarium Milton, Mass

A PRIVATE HOSPITAL and IDEAL RESORT

All classes of patients admitted. Separate departments for the victims of *Alcohol, Opium, Cocaine*, and other *Drug Habits*.

All desire for Liquors or Baneful Drugs speedily overcome without hardship or suffering

No Gold or Other Cures (?); no Secret Remedies used; the most thorough investigation is cordially invited.

A well-equipped Gymnasium, with competent Instructors and Masseurs, for the administration of purely hygienic treatment; also a Ten Plate Static Electrical Machine, with X-ray, and all the various attachments.

Licensed by the Governor and Council

J. Frank Perry, M.D., Supt.

BROMIDIA IS A REST-MAKER FOR RESTLESSNESS. IT GIVES CONSISTENT NERVE REST. IT DOES NOT LESSEN THE SUPPLY OF BLOOD TO ANY ORGAN OF THE ECONOMY, AS THE BROMIDES ARE SURE TO DO. IT IS A HYPNOTIC.

FORMULA:--15 grains each Chloral Hydrate and Purified Brom. Pot. and 1-8 grain each Gen. Imp. Ext. Cannabis Ind. and Hyoscyamus to each fld. drachm.

ECTHOL
IODIA
PAPINE

BATTLE & CO., CHEMISTS CORPORATION, ST. LOUIS, MO., U.S.A.

Samples
and
Literature
supplied by



AGURIN
The Non-Irritating Diuretic.

EPICARIN
The Non-Toxic Dermal Parasiticide.

SALOQUININE
The Tasteless and Improved Quinine.

HEDONAL
The Promoter of Natural Sleep.

FERRO-SOMATOSE
The Ferruginous Nutrient and Tonic.

PROTARGOL
Antigonorrhreal, Antiseptic

ASPIRIN
The Best Salicylate

G. HERBERT DALEY & CO. Unlisted Investment Securities

Stocks of unlisted mining and industrial companies bought and sold. Companies incorporated, properties examined.

Write for particulars concerning the stock of the Meckland Wagon Company, eight per cent. assured, twenty to forty per cent. is probable. The principal of this investment is thoroughly secured.

G. HERBERT DALEY & CO.,
68 Broad Street, N. Y.

THIS is the time
to renew
SUBSCRIPTIONS

Make checks payable to JOURNAL OF NERVOUS AND MENTAL DISEASE, 231 West 71st Street, New York.

TERP- HEROIN

Foster's

A Respiratory Antispasmodic Sedative and Expectorant

Most successfully indicated in the treatment of all diseases of the respiratory tract, attended with Cough and Dyspnea, Pulmonary and Laryngeal Tuberculosis, Bronchitis, Laryngitis, Pneumonia, Emphysema, Asthma, and Whooping Cough.

CONTAINS

Terpin Hydrate 2 grs. and
Heroin 1-24 gr. to the drachm in a vehicle of
Prunus Serotina and
Glycerine, making it a very agreeable and palatable preparation; being tolerated by the most sensitive stomach.

DOSE: Teaspoonful every two or three hours.

POSITIVELY
ABSOLUTELY and
INCONTROVERTIBLY
the best RESPIRATORY SEDATIVE
ever offered to the PROFESSION.

It DOES control the cough.

It DOES relieve the congestion of the
passages; and

It DOES make expectoration easy.

Being a remedy of proved value it rests
upon its own merits.

Put it to the test.

Prescribe Terp Heroin (Foster) in original 250
c. c. (8 oz.) bottles to avoid substitution.

Sample and Literature on Application

JOHN B. FOSTER & BROTHER
NEWARK, N. J.

Weight Losing

Consumptives will gain weight on Hydroleine where they lose weight on plain cod-liver oil. The plain oil will cause diarrhoea, oily eructations, or pass through unchanged; while Hydroleine will be eagerly taken up by the lacteals, and produce a steady gain in weight, and a marked improvement in the general health. Hydroleine aids and restores the functional activity of the pancreas and rapidly develops an appetite.

Sold by druggists generally.

THE CHARLES N. CRITTENTON CO., 115-117 Fulton St., New York
Samples free to physicians.

Sole Agents for the United States

AN INFANT'S FOOD

AS a basis for preparing a substitute for human milk, it is agreed by authorities that Fresh Cow's Milk must be used.

Fresh milk contains the antiscorbutic element.

Sterilized, condensed, dried or desiccated milk does not contain it.

The addition of

MELLIN'S FOOD

to fresh milk is simply for modification.

Fresh milk so modified still contains the antiscorbutic element and is easily and readily assimilated by an infant.

The subject of the

Home Modification of Fresh Cow's Milk

is concisely and interestingly treated in our illustrated book, cloth bound, which we should be pleased to send you free.

MELLIN'S FOOD COMPANY, BOSTON, MASSACHUSETTS

The History of the *H. K. Mulford Company*

IS one of the most logical bits of business history in the pharmaceutical and chemical business. It is a story of the persevering, persistent effort of expert pharmacists, chemists and bacteriologists to produce without sparing care and expense the best products obtainable. The verdict of the profession is that we have succeeded

H. K. MULFORD COMPANY
C H E M I S T S
Philadelphia New York Chicago

CHAPOTEAUT'S PHOSPHO-GLYCERATE OF LIME

(*Syn. Glycero-phosphate of Lime*).

A NERVE FOOD AND STIMULANT.

Neurasthenia
IDIOPATHIC or
SYMPTOMATIC

Pure Phospho-glycerate of lime is exceedingly sensitive to light, air and heat, but keeps well in capsules or in the form of a syrup or wine. For these reasons we request the profession to specify the
"CHAPOTEAUT"
PREPARATIONS.

Indicated in convalescence, chlorosis, anemia, albuminuria, phosphaturia, tuberculosis, and especially in sexual neurasthenia and wasting diseases resulting in nervous exhaustion.

DOSE: 4 to 12 grains daily for adults; half doses for children.

CAPSULES, 4 GRAINS EACH.
WINE, 4 GRAINS TO THE TABLESPOONFUL.
SYRUP, 4 GRAINS TO THE TABLESPOONFUL.

RIGAUD & CHAPOTEAUT, Paris,
U. S. Agents, E. FOUGERA & CO., N. Y.

Publishers' Announcements.

The Advertising Department will be conducted solely on ethical principles. It is expected that our readers will aid the Journal by showing our advertisers the courtesy of at least noticing their various announcements, or in more actively interesting themselves in the advertisers' behalf.

(Continued from November number.)

This neutral solution contains three grains of iron and one grain on manganese in each tablespoonful. The latter ingredient is doubtless to be credited with a large part of the nearly specific effect of the remedy in functional menstrual derangements. The preparation is pleasant to the eye, agreeable to the palate and has the great advantage over inorganic iron compounds of not corroding the teeth, deranging digestion nor inducing constipation. According to the nature and severity of the case, the dose varies from a teaspoonful to a tablespoonful. It is well taken in milk or sherry just after meals.

The following brief clinical notes may serve to illustrate the facts above stated. The blood count in each instance was made with Thoma-Zeiss hemacytometer; hemoglobin was calculated by the Hammerschlag specific gravity method. I need hardly remark that the blood findings at the altitude of Denver are normally higher than at points near sea level.

CASE 1. Jose K., 15 years, thin, delicate and somewhat strumous, had menstruated irregularly and intermittently for 16 months; erythrocytes 3,600,000, hemoglobin 58 per cent. She was taken out of school, put on a diet largely protein, given aloin, strychnin and belladonna pills for her bowels, and for her blood, Pepto-Mangan (Gude), a dessertspoonful four times daily after eating. Under this treatment she made an average weekly gain of 1 1-4 pounds in weight, about 150,000 red cells and 3 1-3 per cent. hemoglobin, and was discharged cured in ten weeks.

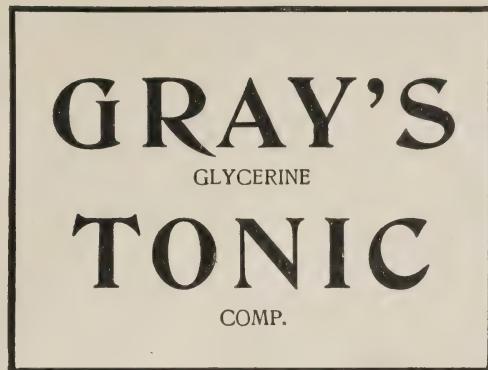
CASE 2. Alice R., 18 years, rather stout but pale, with greenish tinge; complained palpitation and breathlessness on slight exertion; menstruation barely begun and scanty. She was made to take gradually increasing exercise on her bicycle, a cool bath every morning, less carbohydrates and more proteins in her diet, and Pepto-Mangan (Gude) in the dose above mentioned. She recovered from all her morbid symptoms within four months, and has since married and given birth to two healthy children.

CASE 3. Amelia B., 23 years old, an overworked servant girl, had suffered since the periods first began, nine years before, with marked dysmenorrhea, the flow being prolonged but rather scanty. The red blood cells numbered 3,800,000 per cu. m. m., with proportionate oligochromia. She was induced to rest at home and take six eggs daily, along with other nourishing food and Pepto-Mangan (Gude), a dessertspoonful four times daily an hour after food. She made very rapid recovery, the red cells running up to 4,900,000 within two months and the menstrual periods becoming quite normal. By exercising proper care she has remained well for the past eight years.

CASE 4. Olive M., 13 years, blonde, thin, active, sensitive, a hard student, just beginning to menstruate, the flow being scanty and accompanied with pain. The blood count was 63 per cent. of normal, the color index 57 per cent. Under treatment similar to that mentioned in

No physician can afford to be indifferent regarding the accurate filling of his prescription.

'The success of the present-day treatment of nervous exhaustion, malnutrition and general debility is largely due to



It has become the Standard Remedy.

•
THE PURDUE FREDERICK CO., No. 15 Murray St., New York.

Phillips' Emulsion 50% best NORWAY COD LIVER OIL
minutely sub-divided,
WITH WHEAT PHOSPHATES (Phillips')
Pancreatized, Palatable, Permanent, Miscible in Water, Milk, Wine, etc.

Phillips' Milk of Magnesia Mg H₂O₂ (FLUID.)
"THE PERFECT ANTACID."
for correcting Hyperacid conditions—local or systemic.
Vehicle for Salicylates, Iodides, Balsams, etc.

Phillips' Phospho-Muriate
of Quinine, COMP.
TONIC AND RECONSTRUCTIVE.

WHEAT PHOSPHATES, WITH MURIATE OF QUININE AND STRYCHNINE.

PHILLIPS' WHEAT PHOSPHATES (ACID).
PHILLIPS' SYRUP OF WHEAT PHOSPHATES.
PHILLIPS' DIGESTIBLE COCOA.

THE CHAS. H. PHILLIPS CHEMICAL CO., NEW YORK.

Bibliography of American Neurology and Psychiatry. 89.

ANATOMY

SPITZKA, E. A. The Mesial Relations of the Inflected Fissure; Observations on One Hundred Brains. *Proc. Assoc. Amer. Anatomists*, 1901.

JOHNSTON, J. B. An Attempt to Define the Primitive Functional Division of the Central Nervous System. *Jour. Comparative Neurology*, 12, 1902, p. 87.

ONUF, B. On the Arrangement and Function of the Cell Groups of the Sacral Region of the Spinal Cord in Man. *Archives of Neurology and Psycho-Pathology*, Vol. 3, 1900, No. 3.

JOHNSTON, J. B. The Brain of Petromyzon. *Jour. Comparative Neurology*, 12, 1902, p. 1.

BARDEEN, C. R. A Statistical Study of the Abdominal and Border Nerves in Man. *Amer. Jour. of Anatomy*, 1, 1902, p. 203.

SPITZKA, E. C. The Location of Mental Functions in the Fore-Brain. Discussed in Its Possible Relations to Heredity. *Medical Critic*, 2, 1901, p. 3.

BARKER, L. F. The Cells and Fibers of the Spinal Cord. *Jour. Amer. Med. Assoc.*, 38, 1902, p. 606.

BRAIN

PHELPS, C. Localization of the Mental Faculties in the Left Prefrontal Lobe. *Amer. Jour. Medical Sciences*, 123, 1902, p. 563.

CANNON, W. B. Intracranial Pressure After Head Injuries. *Boston Med. and Surg. Jour.*, 145, 1901, p. 158.

STONER, H. H. Cerebral Aneurism. *Medicine*, 7, 1901, p. 807.

STRONG, O. S. Preliminary Report upon a Case of Unilateral Atrophy of the Cerebellum. *Jour. Comparative Neurology*, 11, 1901, p. 60.

JACKSON, T. W. Traumatic Meningitis with Effusion, Cerebral Convulsions, Double Trephining, Recovery. *Phila. Med. Jour.*, 9, 1902, p. 805.

RINEHART, J. F. Treatment of a Case of Pertussis with Cerebral Enlargement. *Medical Dial*, 4, 1902, p. 63.

DILLER, T. Report as to the Condition of a Man through Whose Right Cerebrum a Bullet passed from before Backward Eleven Years ago. *Journal Nervous and Mental Disease*, 29, 1902, p. 275.

SPITZKA, E. C. The Location of Mental Functions in the Fore-Brain. Discussed in its Possible Relations to Heredity. *Medical Critic*, 2, 1901, p. 3.

BRAIN TRAUMA

BANE, W. C. Eye Symptoms in Brain Injuries. *Railway Surgeon*, 8, 1901, 305.

LAMB, D. S. Spiculum of Bone from Shot Fracture of Skull, which Rested Against the Brain for Forty-four Years. *N. Y. Med. Jour.*, 74, 1901, p. 213.

FAIRCHILD, D. S. Some Facts Concerning Head Injuries. *Amer. Jour. Surgery and Gynecology*, 15, 1902, p. 123.

MANLEY, T. H. A Clinical Lecture on Scalp Wounds, and Cranial and Brain Injuries. *Phila. Med. Jour.*, 9, 1902, p. 181.

CANNON, W. B. Intracranial Pressure After Head Injuries. *Boston Med. and Surg. Jour.*, 145, 1901, p. 158.

SWASEY, E. Destruction of Left Eye and Frontal Lobe of Brain from Shot Gun Explosion. *Boston Med. and Surg. Jour.*, 144, 1901, p. 230.

ANDREWS, E. W. Brain Concussion in Light of Modern Research. *Railway Surgeon*, 8, 1902, p. 277.

BANE, W. C. Eye Symptoms in Brain Injuries. *Railway Surgeon*, 8, 1902, p. 305.

PSYCHIATRY—TREATMENT

PATON, S. Recent Advances in Psychiatry and Their Relation to Internal Medicine. *Amer. Jour. Insanity*, 53, 1902, p. 433.

HILL, G. H. A Review of the Pathological Work Done in the Hospital for the Insane at Independence, Iowa. *Amer. Jour. Insanity*, 53, 1902, p. 483.

BROWER, D. R. Some Suggestions for the Care and Better Treatment of the Insane. *Illinois Med. Jour.*, 3, 1902, p. 377.

FLETCHER, W. B. A Consideration of the Present Laws for the Commitment of the Insane of Indiana. *Indiana Med. Jour.*, 20, 1901, p. 45.

SPITZKA, E. C. The Location of Mental Functions in the Fore-Brain Discussed in its Possible Relations to Heredity. *Medical Critic*, 2, 1901, p. 3.

CHASE, R. H. Static Electricity in the Treatment of Insanity. *Phila. Med. Jour.*, 9, 1902, p. 800.

FERNALD, W. E. Educational Treatment of Feeble Minded. *New England Med. Gazette*, 37, 1902, p. 97.

ROBBINS, J. E. Tendencies in Hospitals for the Insane, with Some Suggestions. *National Hosp. Record*, 1902, p. 3.

N. B.—CUT THESE OUT, PASTE ON CARDS, AND KEEP AN INDEX OF
AMERICAN NEUROLOGICAL WORK.

FAT IN BONE MARROW.

The abundance of fat found in healthy bone marrow and the scarcity of fat in the bone marrow of anæmic patients suggests a reason why cod liver oil is so often efficient as a remedy for anæmia. Scott's Emulsion, the reliable preparation of the whole cod liver oil, is often of great use in relieving anæmic conditions, especially the chlorosis of young women.

Samples free.

SCOTT & BOWNE, Chemists,
409 PEARL STREET,
NEW YORK,

Your Old Friend



Antikamnia & Codeine Tablets



(ONE OR TWO EVERY THREE HOURS.)

Should be Consulted

Directly applicable in the various membranous affections of the bronchi, saucers and lungs, and also eminently qualified as an analgesic in dysmenorrhœa, ovarian neuralgia, and allied conditions

The Antikamnia Chemical Company,

(SAMPLES AND LITERATURE ON APPLICATION.)

St. Louis, U.S.A.

1/4-Grain Antikamnia Tablets
Active Antikamnia & Quinine Tablets



Antikamnia & Codeine Tablets
Antikamnia & Heroin Tablets

Bibliography of American Neurology and Psychiatry. 90.

SPINAL ANESTHESIA

BAINBRIDGE, W. S. A Report of Twelve Operations on Infants and Young Children during Spinal Analgesia. *Archives of Pediatrics*, 18, 1901, p. 510.

MURPHY, J. B. Analgesia from Spinal Subarachnoid Cocainization. *Western Med. Review*, 6, 1901, p. 124.

RODMAN, W. L. Medullary Narcosis. *Therapeutic Gazette*, 25, 1901, p. 9.

DELAUP, S. P. Spinal Anesthesia. *New Orleans Med. and Surg. Jour.*, 54, 1901, p. 211.

RICHARDSON, M. H. Remarks upon Spinal Cocainization Suggested by Cases Seen at Tuffeir's Clinic in Paris. August, 1900. *Boston Med. and Surg. Jour.*, 144, 1901, p. 37.

RICHARDSON, M. H. Remarks on Anesthesia—General, Local and Spinal. *Boston Med. and Surg. Jour.*, 144, 1901, p. 391.

SHERRILL, J. G. Analgesia From Spinal Subarachnoid Injection of Cocaine. *Louisville Monthly Jour. of Med. and Surg.*, 8, 1902, p. 128.

MACDONALD, D. Spinal Anesthesia and Chloroform. *Amer. Jour. of Surg. and Gynecology*, 15, 1902, p. 121.

REFLEXES

PICKETT, Wm.—The Scapulo Humeral Reflex of von Bechterew. *Journal of Nervous and Mental Disease*, 28, 1901, p. 273.

SAILER, J. The Supraorbital Reflex in Facial Paralysis. *Phila. Med. Jour.*, 8, 1901, p. 914.

VAN EPPS, C. The Babinski Reflex. *Journal of Nervous and Mental Disease*, 28, 1901, p. 214.

MORSE, J. L. A Study of the Plantar Reflex in Infancy. *Pediatrics*, 11, 1901, p. 13.

MAYO, T. J. The Vagus Reflex. *Boston Med. and Surg. Jour.*, 146, 1902, p. 60.

PRINCE, M. The Great Toe (Babinski) Phenomenon: A Contribution to the Study of the Normal Plantar Reflex Based on the Observation of One Hundred and Fifty-six Healthy Individuals. *Boston Med. and Surg. Jour.*, 144, 1901, p. 81.

WALTON, G. L. The Babinski and Scapular Reflexes. *Boston Med. and Surg. Jour.*, 146, 1902, p. 382.

WALTON, G. L. The Localization of the Reflex Mechanism. *Journal Nervous and Mental Disease*, 29, 1901, p. 337.

MCCARTHY, D. J. The Supraorbital Reflex, an Explanatory Note. *Phila. Med. Jour.*, 9, 1902, p. 588.

SPINAL CORD

BOCHROCH, M. H. and GORDON, A.—A Case of Multiple Lesions of the Spinal Cord and Cranial Nerves with Amyotrophy, due Probably to Syphilitic Infection. *Journal of Nervous and Mental Disease*, 29, 1902, p. 209.

GOLDTHWAIT, J. E. Asteo-Arthritis of the Spine, Spondylitis Deformans. *Boston Med. and Surg. Jour.*, 146, 1902, p. 299.

FREEMAN, L. Operation for Spina Bifida, with Report of a Successful Case. *Denver Med. Times*, 21, 1902, p. 313.

EVE, P. F. Treatment of Spina Bifida. *Amer. Jour. of Surg. and Gynecology*, 15, 1902, p. 120.

GIBNEY, H. Orthopedic Operations for Intractable Cerebro-Spinal Cord Lesions, with Report of Two Cases. *Medical News*, 80, 1902, p. 929.

TURNER, W. A. The Knee-Jerks in Transverse Lesion of the Spinal Cord. *Journal Nervous and Mental Disease*, 29, 1902, p. 321.

SCHUMPERT, C. L. A Case of Spina Bifida. *New Orleans Med. and Surg. Jour.*, 54, 1901, p. 228.

WILSON, F. C. A Case of Spina Bifida. *Pediatrics*, 13, 1902, p. 174.

COX, W. C. Railway Spine. *Railway Surgeon*, 8, 1901, p. 133.

NEURASTHENIA

BROWER, D. R. The Drug Treatment of Neurasthenia. *International Med. Jour.*, 11, 1902, p. 71.

GREENFIELD, E. J. Neurasthenia Gastrica. *Amer. Med. Compend*, 18, 1902, p. 72.

SINKLER, W. Use of Hydrotherapy in Neurasthenia and Other Nervous Affections. *Milwaukee Med. Jour.*, 9, 1901, p. 259.

GILLESPIE, R. L. Neurasthenia. *Medical Sentinel*, 10, 1902, p. 48.

SCOTT, C. Neurasthenia. *New Albany Med. Herald*, 21, 1902, p. 671.

DELAMATER, N. B. Some Suggestions on the Treatment of Neurasthenia. *Medical Visitor*, 18, 1902, p. 267.

BURR, C. W. The Prevention of Neurasthenia after Surgical Operations. *Phila. Med. Jour.*, 9, 1902, p. 713.

PEARCE, F. S. Neurasthenia. *Hysteria. Med. Fortnightly*, 21, 1902, p. 17.

NUTT, G. D. Surgery in Its Relation to Neurasthenia. *Pennsylvania Med. Jour.*, 5, 1902, p. 256.

BROWER, D. R. The Medicinal Treatment of Neurasthenia. *Mercks Archives*, 4, 1902, p. 145.

N. B.—CUT THESE OUT, PASTE ON CARDS, AND KEEP AN INDEX OF
AMERICAN NEUROLOGICAL WORK.

Written Endorsements from upwards of 8,000 Physicians

VIN MARIANI

During 40 Years Invariably

**'The Standard Preparation of Erythroxylon
Coca.'**

Most useful adjuvant in general treatment as a
TONIC, RESTORATIVE, MILD STIMULANT

Valueable in Neurasthenia from Overwork and Worry,
in Chronic Wasting Disease and Following Influenza or
other Acute Infections.

80 Page, Illustrated Monograph by European and American ob-
servers, with formula, dose, etc., cloth bound, will be
forwarded postpaid to any physician on application.

PARIS: 41 Boulevard Haussman.
LABORATORY: Neuilly, Sur-Seine, France.
LONDON: 49 Haymarket.
BERLIN: 56 Charlotten Strasse.
MONTREAL: 87 St. James Street.

MARIANI & CO.

52 West 15th St., New York.

VIN MARIANI on sale at Druggists throughout the World.

CAUTION.—Refuse Substitutes, Avoid Disappointment.

PUBLISHERS' ANNOUNCEMENTS

the first case, she became round and rosy, menstruated freely and easily, took on 17 pounds in weight and raised the blood findings above the normal at sea level, all within eight months.

CASE 5. Fannie R., 17 years, active, ambitious, intelligent, had such excruciating pain all through her menstrual periods for two years as to cause actual wasting. Physical examination revealed nothing abnormal except an undersized uterus. She was given Pepto-Mangan in tablespoonful doses three times a day, and was told to lie with the head lower than the hips. After three months treatment the periods became quite painless, and have remained so for five years.

CASE 6. Flora J., 16 years old, began to menstruate profusely a year before, since which time she has been always ailing; erythrocytes 3,100,000, hemoglobin 63 per cent. She was given cool baths and massage, a bitter tonic, laxatives and Gude's Pepto-Mangan in dessertspoonful doses. When discharged cured, five months later, the blood count was 4,700,000, hemoglobin 95 per cent.

CASE 7. Maggie W., aged 15, clerk in a department store, was extremely chlorotic (hemoglobin 28 per cent.), with a soft, systolic basic murmur and some symptoms of gastric ulcer; menstrual molimina but no flow. She was kept in bed at home, fed largely on meat, fish and eggs, and was given Pepto-Mangan (Gude) thrice daily a tablespoonful at a time. The functional murmur disappeared, the iron in the blood came gradually up to normal, the patient lost in weight as she gained in health, and menstruation appeared regularly.

CASE 8. Nora R., 14 years, healthy in appearance but neurasthenic; no trouble with menstruation, except at this time she became more nervous and developed a rapid pulse and some swelling of the thyroid gland. For this incipient exophthalmic goiter she was kept in bed with a cold pack over the thyroid at the menstrual period, and was given Pepto-Mangan (Gude) steadily for six months in dessertspoonful doses. She has been quite well and free from the symptoms mentioned for over a year.

In conclusion the writer would like to emphasize the peculiar physiologic efficacy of Pepto-Mangan (Gude) in aiding young girls to a normal womanhood, when the crisis of puberty is complicated with any defect in blood-making and nutrition. Its action is prompt and pleasant, and the clinical benefits derived from its use are readily apparent to all concerned. In curable cases it is as nearly specific as any combination of drugs could be.

THE H. K. MULFORD COMPANY.

The attention of the readers of this journal is directed to the catalogue recently issued by the H. K. Mulford Company. The catalogue is completely classified and contains a full and complete table of contents and Therapeutic Index. Every physician should have a copy of this new list, as he will find it a ready and valuable book of reference. For the more general introduction of the metric system, metric dosage on Fluid Extracts is included. This no doubt will be followed out more largely in future lists. Much space has been allowed in the new catalogue to special products, and valuable information is furnished as to therapeutic action, dosage, etc. Of special value and importance to the medical profession are the departments devoted to antitoxins and vaccines, describing fully the method of preparing the various biological products, in the preparation of which the Mulford Company have taken a most active part. To enhance and beautify the appearance of the catalogue, and to bring more vividly before its patrons the unsurpassed facilities which the H. K. Mulford Company enjoy for the scientific prepar-

No physician can afford to be indifferent regarding the accurate filling of his prescription.

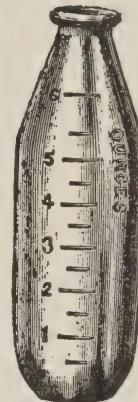


PASTEURIZER

As Devised by Dr. FREEMAN

APPARATUS FOR FAMILY
USE; ALSO LARGE SIZE
FOR HOSPITAL USE.

DR. CHAPIN'S DIPPER OF ALUMINUM, IMPROVED
FORM FOR RE-
MOVING FROM
MILK BOTTLES
TOP MILK OF DIFFERENT PERCENTAGE OF FAT.
PRICE 25 CENTS. → → HOLDS 1 OZ.



Bottles of Improved form for Pasteurizing and for Nursing

Bacteriological Laboratory and Physicians'
Supplies

James T. Dougherty 409-41 W. 59th St.
NEW YORK.

PEACOCK'S BROMIDES

THE PUREST FORM OF
BROMIDES.

Each fluid drachm represents 15 grains of the combined C. P. Bromides of Potassium, Sodium, Calcium, Ammonium and Lithium.

DOSE: One to three teaspoonfuls, according to the amount of Bromides required.



CHIONIA

FROM
CHIONANTHUS VIRGINICA.

Re-establishing portal circulation without producing congestion.

Invaluable in all ailments due to hepatic torpor.

DOSE: One to two teaspoonfuls three times a day.

Full size sample to physicians who will pay express charges.

HALF-POUND BOTTLES ONLY.

PEACOCK CHEMICAL CO., St. Louis.

BEWARE OF SUBSTITUTION.

CACTINA PILLETS

Has many Advantages over
other Heart Stimulants.

EACH PILLET REPRESENTS ONE ONE-HUNDREDTH OF A GRAIN CACTINA, THE ACTIVE PROXIMATE PRINCIPLE OF CEREUS GRANDIFLORA.

DOSE: ONE TO FOUR PILLETS THREE TIMES A DAY.

SAMPLES MAILED TO PHYSICIANS ONLY.

SENG

Promotes Normal Digestion by encouraging the flow of Digestive Fluids.

A Most Successful Treatment for
INDIGESTION.

A PALATABLE PREPARATION OF PANAX SCHINSENG IN AN AROMATIC ESSENCE.

DOSE: ONE TO TWO TEASPOONFULS THREE TIMES A DAY.

A FULL SIZE BOTTLE, FOR TRIAL, TO PHYSICIANS WHO WILL PAY EXPRESS CHARGES.

SULTAN DRUG CO., St. Louis, Mo., U. S. A.

PUBLISHERS' ANNOUNCEMENTS

ation of these products, half-tone reproductions appear to illustrate the subject. The reproductions of the firm's new laboratories at Glenolden, are convincing proofs of the sole purpose and desire of the firm to keep step with scientific advancement. In these new laboratories, entirely separate and removed from each other, and from the general pharmaceutical laboratories, all the antitoxin, vaccine, and various biological work is carried on. The very complete and thorough equipment, and the fact that each department is under the direction of scientific men with world-wide reputations, is another sure evidence of the firm being in fullest accord with the latest scientific advancement.

The pharmaceutical laboratories of the firm, in Philadelphia, have by no means been overlooked in the work of improvement. A handsome new eight-story building with two basements, has been erected, adjoining their old pharmaceutical laboratories, and all the buildings have been equipped with the latest electrical devices, thus reducing the cost of manufacture to a minimum. In short, their entire mechanical equipment



has been completely reconstructed, and brought up to the highest state of efficiency attainable. Economy has not been observed where improvements could be made.

While the growth of this firm is very unusual, yet it is not remarkable, because it is only the natural result and reward of the energy and honest effort put forth. The firm has only one aim, viz., to bring before the medical and pharmaceutical professions the direct results of the latest scientific research work in the lines of bacteriology, pharmacology and physiological chemistry.

Of much importance to the medical profession are some of the newer products of the firm, which are fully described in the catalogue, of which somnos and protan are being most favorably received. Somnos is a definite synthetic product formed by the synthesis of chloræthanal alcoholate with a polyatomic alcohol radical. This product gives prompt

No physician can afford to be indifferent regarding the accurate filling of his prescription.

THE ANÆMIAS

yield readily to organic, or true animal iron treatment.

A resort to *inorganic* iron preparations or tonics, serves only to stimulate corpuscular proliferation without supplying sufficient nutrition to mature the blood cells.

A preparation of **TRUE ANIMAL IRON** that will supply every deficiency in the blood, and assure the proliferation of *all* the corpuscles to a full and sturdy maturity, is found in

BOVININE

It contains 10% **ANIMAL IRON**, 20% coagulable albumen, and every element of nutrition of the animal, mineral, and vegetable kingdoms.

It is readily absorbed by the tissues, requires little or no digestion, is prompt and reliable in stimulation and support, and is a nutrient of the very highest value.

BOVININE administration causes quick increase of the leucocytes, and a consequent arrest of all pathological processes.

BOVININE is advertised to the Profession only, and is a strictly ethical physician's preparation. Its formula is open to all.

A postal request brings you our Hand-book on Haematherapy, giving valuable information to both the general practitioner and the specialist.

THE BOVININE COMPANY,
75 W. HOUSTON ST., NEW YORK.

PUBLISHERS' ANNOUNCEMENTS.

sedative and quieting effect, and produces natural sleep, without affecting the heart or general circulation. Protan is formed by the synthesis of tannin with nucleo-proteid. The astringent effects are not imparted to the system until the intestinal tract is reached, where the tannic acid is slowly evolved and its astringent properties exerted exclusively upon the entire intestinal tract from the duodenum to the colon. Protan is of especial advantage in the treatment of children's diseases peculiar to the summer season.

The firm of H. K. Mulford Company is to be congratulated upon the successful development of its business, and the rapid strides it is making in advancing scientific work.

A SYSTEMIC ALTERATIVE EFFECT.

The following from *Gaillard's Medical Journal*, by Dr. A. H. Ashley, of Boston, Mass., will interest our readers because of the original way in which he expresses his pronounced admiration for something tried, trusted and not found wanting. The letter was written to our old friends, the Antikamnia Chemical Company, and reads as follows:

Gentlemen—Your various combination tablets, as well as antikamnia tablets, have been used by me for a number of years, and I can only say that they have uniformly given me the best results. But my dear sirs, why have you waited so long to give us the very best combination of them all? I, of course, allude to your "laxative antikamnia and quinine tablets."

If there is anything known to the medical profession which will take their place in that class of diseases where one wishes to relieve pain, control the temperature and at the same time produce, by laxation, a systemic alterative effect, it has not been my good fortune to find it. In those cases of severe neuralgia, and particularly in ovarian and menstrual pain, where morphine was our only hope (and where, after its administration, we had indigestion, bowels bound up, nausea, habit, etc.), you have in Laxative Antikamnia and Quinine Tablets a remedy which will, my experience has taught me, replace morphine and meet all requirements.

I am slow to be carried away by enthusiasm for any drug or combination of drugs, but I freely and voluntarily confess that in these tablets you have given to the profession a remedy so effective and reliable in its action that it offers good excuse (or a mitigating circumstance anyhow) for a little effusion from one who, as a general thing, is not given to gushing.

With my best wishes for your future and many thanks for your elegant preparations, I am sincerely yours,

A. H. ASHLEY, M.D.

ADMINISTRATION OF IODIDES.

There is no better vehicle for administering iodides, bromides, salicylates, morphia and other drugs that disturb the digestive functions, than Armour's Essence of Pepsin. This preparation may also be used to great advantage in making junket, as it possesses great curdling as well as proteolytic power.

No physician can afford to be indifferent regarding the accurate filling of his prescription.

IMPORTANT BOOKS

A System of Legal Medicine

A Complete Work of Reference for Medical and Legal Practitioners

By ALLAN McLANE HAMILTON, M. D., Professor of Mental Disease, Cornell University Medical School, New York, assisted by a Corps of Thirty Medical and Legal Collaborators. Chiefly American cases cited. Up-to-date in Theory and Practice. Now Recognized as the Authoritative Work on Medical Jurisprudence in this Country.

Second Edition, With Revisions and Additions. Illustrated. 2 Vols. Cloth, \$10; Sheep, \$12.

International Medical Annual 1902

A Complete Work of Reference, and Annual Retrospect. 20th Year.

The physician possessing this work can make himself acquainted in a few minutes with the most recent advances in knowledge and practice respecting almost any subject in Medicine, Therapeutics or Surgery. It is a *resume* of upwards of 600 medical publications of the world, prepared within brief compass, in easy dictionary reference form, by a competent staff of editors. Abundant references are given for further investigations.

8vo. About 700 pages. Illustrated. Post or express paid. Cloth, \$3 net.

Syphilis A Symposium by Seventeen Distinguished Authorities

Drs. Louis A. Duhring, L. Duncan Bulkley, Orville Herwitz, William S. Gottheil, Norman B. Gwyn, E. B. Gleason, Follen Cabot, Jr., Boardman Reed and others. They give concisely the most recent and accurate information on the various phases of this important subject.

12 mo. 125 pages. Post or express paid. Cloth, \$1 net.

The Sexual Instinct

Its Use and Dangers as Affecting Heredity and Morals.

By JAMES FOSTER SCOTT, B. A. (Yale), M. D., C. M. (Edinburgh); late Obstetrician to Columbia Hospital for Women, and Lying-in-Asylum, Washington, D. C.

8vo. 436 pages. Post or express paid. Cloth, \$2 net.

Sexual Debility in Man

By FREDERIC R. STURGIS, M. D., Formerly Clinical Professor of Venereal Diseases, Medical Department, University of the City of New York; Ex-Visiting Surgeon to the City Hospital, Blackwell's Island.

8vo. 436 pages. Illustrated. Post or express paid. Cloth, \$3 net.

Nervous Exhaustion (Neurasthenia)

Its Hygiene, Causes, Symptoms and Treatment

By GEORGE M. BEARD, M. D., Formerly Lecturer on Nervous Diseases in the University of the City, of New York, etc. Revised by A. D. ROCKWELL, M. D., Late Professor of Electro-Therapeutics in the New York Post-Graduate Medical School and Hospital, etc.

Fourth Edition. 8vo. 274 pages. Cloth, \$2 net.

Sexual Neurasthenia

Devoted to Genital Debility; its Causes, Symptoms and Treatment

By GEORGE M. BEARD, M. D., and A. D. ROCKWELL, M. D., New York.

Fifth Edition. 8vo. 308 pages. Post or express paid. Cloth, \$2 net.

Consumption, Pneumonia

And Allied Diseases of the Lungs; their Etiology, Pathology and Treatment, with a Chapter on Physical Diagnosis.

By THOS. J. MAYS, A. M., M. D., Professor of Diseases of the Chest in the Philadelphia Polyclinic Visiting Physician to Rush Hospital for Consumption.

The book is a radical departure in many respects from the well trodden paths of Pulmonary Therapeutics, for in it the author advances and well supports the theory that Pulmonary Phthisis in the large majority of cases is primarily a neurosis and the only remedies of value in the treatment are those which appeal to and act through the nervous system. The sections on treatment are especially to be commended.

8vo. 540 pages. Illustrated. Post or express paid. Cloth, \$3 net.

Books delivered free to any address in Universal Postal Union upon receipt of advertised price. Our complete Catalogue sent upon request.

E. B. TREAT & CO., Publishers, 241-243 W. 23d St., New York

KING'S OXYGEN COMPOUND

AND PURE OXYGEN

are manufactured for medicinal purposes, compressed in small and large (brown) cylinders, 100 x 150 gallons respectively.

Can be obtained from leading druggists or direct from our laboratory any hour of the day or night



Telephone 2529, 38th Street.

Booklet "Oxygen in Therapeutics" mailed on application.

King Oxygen Works

216 West 42d Street, New York

Exclusive Manufacturers of Medicinal Oxygen.

Alliance Press Company

GENERAL PRINTERS AND BINDERS, MEDICAL
PUBLICATIONS A SPECIALTY, FINE EQUIPMENT
LINOTYPE MACHINES, INDIVIDUAL MOTORS AT-
ACHED TO MACHINES THROUGHOUT, , , ,

38 West 18th St. and 41 West 17th St., New York, N. Y.

SANMETTO FOR GENITO-URINARY DISEASES.

A Scientific Blending of True Santal and Saw Palmetto in a Pleasant Aromatic Vehicle.

A Vitalizing Tonic to the Reproductive System.

SPECIALLY VALUABLE IN
PROSTATIC TROUBLES OF OLD MEN—IRRITABLE BLADDER—
CYSTITIS—URETHRITIS—PRE-SENIILITY.

DOSE:—One Teaspoonful Four Times a Day.

OD CHEM. CO., NEW YORK.

NEW AND EFFICACIOUS
ERGO APIOL
SMITH

ERGO-APOL

AMENORRHEA, DYSMENORRHEA, FETID, SCANTY,
AND
RETARDED MENSTRUATION.

Apiol—Special M. H. S. IN ELASTIC CAPSULS

Ergotin

Oil Savin

Aloin

Put up in capsule form only, packed twenty in
a box.

DOSE—One or two capsules, three or four times a day

THE THERAPEUTIC RESULTS ACTUALLY OBTAINED.

MARTIN H. SMITH CO., Pharmaceutical Chemists, NEW YORK, U. S. A.

**PRESCRIBE
DR BRUSH'S
KUMYSS**

WHY
EXPERIMENT
WITH
IMITATIONS?

**A SCIENTIFIC PRODUCT PROFESSIONALLY GUARDED
FROM START TO FINISH.**

FIRST CLASS BOOKBINDING

MEDICAL AND LIBRARY WORK A SPECIALTY.

LOW RATES—SATISFACTION GUARANTEED.

ESTIMATES FURNISHED ON LARGE OR SMALL JOBS.

B. LOGIN

Cor. 76th Street—Elevated Station.

Established in 1887.

1328 THIRD AVENUE, NEW YORK CITY.

When corresponding please mention the Journal of Nervous and Mental Disease.

Preparation—Par Excellence
“Fellows’
Syrup of Hypophosphites”

CONTAINS

Hypophosphites of

Iron

Lime

Quinine

Manganese

Strychnine

Potash

Each fluid drachm contains Hypophosphite of Strychnine equal to 1-64th grain of pure Strychnine.

Offers Special Advantages

in Anaemia, Bronchitis, Phthisis, Influenza, Neurasthenia,
and during Convalescence after exhausting diseases.

Dr. Milner Fothergill wrote: “It (Fellows’ Hypophosphites) is a good all-round tonic, specially indicated where there is NERVOUS EXHAUSTION.”

SPECIAL NOTE—Fellows’ Hypophosphites is *Never sold in Bulk*, and is advertised only to the Medical Profession. Physicians are cautioned against worthless substitutes.

Medical letters may be addressed to

MR. FELLOWS, 26 Christopher St., New York

LITERATURE OF VALUE UPON APPLICATION.





UNIVERSITY OF ILLINOIS-URBANA



3 0112 120100232